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## Original Communications.

*General Views on Archæology.* By A. MORLOT, of Lausanne, Switzerland. Translated by PHILIP HARRY, Esq., for the Smithsonian Institution.

A century has scarcely elapsed since the time when it would have been thought impossible to reconstruct the history of our globe prior to the appearance of mankind; but though contemporary historians were wanting during this immense pre-human era, this era has not failed to leave us a well-arranged series of most significant vestiges. The animal and vegetable tribes which have successively appeared and disappeared have left their fossil remains in the successively deposited strata. Thus has been composed, gradually and slowly, a history of creation, written, as it were, by the Creator himself. It is a great book, the leaves of which are the stratified rocks, following each other in the strictest chronological order, the chapters being the mountain-chains. This great book has long been closed to man; but science, constantly extending its realm and improving its method of induction, has taught the geologist to study those marvelous archives of creation, and we behold him now unfolding the past ages of our world with a variety of details and a certainty of conclusions well calculated to inspire us with grateful admiration.

The development of Archæology has been very similar to that

of Geology. Not long ago we should have smiled at the idea of reconstructing the bygone days of our race previous to the beginning of history properly so called. The void was partly filled up by representing that ante-historical antiquity as having been only of short duration, and partly by exaggerating the value and the age of those vague and confused notions which constitute tradition.

It seems to be with mankind at large as with single individuals. The recollections of our earliest childhood have entirely faded away up to some particular event which had struck us more forcibly, and which alone has left a lasting image amidst the surrounding darkness. Thus, excepting the idea of a deluge which exists among so many nations, and therefore appears to have originated before the emigration of those same nations, the infancy of mankind, at least in Europe, has passed without having any reminiscences; and history fails here entirely, for what is history but the memory of mankind?

But before the beginning of history there were life and industry, of which various monuments still exist; while others lie buried in the soil, much as we find the organic remains of former creations entombed in the strata composing the crust of the globe. The antiquities enact here a similar part to that of the fossils; and if Cuvier calls the geologist an antiquarian of a new order, we can reverse that remarkable saying, and consider the antiquarian as a geologist, applying his method to reconstruct the first ages of mankind previous to all recollection, and to work out what may be termed pre-historical history. This is ARCHÆOLOGY pure and proper. But Archæology cannot be considered as coming to a full stop with the first beginning of history, for the further we go back in our historical researches, the more incomplete they become, leaving gaps which the study of material remains helps to fill up. Archæology, therefore, pursues its course in a parallel line with that of history, and henceforth the two sciences mutually enlighten each other. But with the progress of history the part taken by Archæology goes on decreasing, until the invention of printing almost brings to a close the researches of the antiquarian.

To pursue geological investigations, we must first examine the present state of our planet, and observe its changes—that is, we must begin by physical geology. This supplies us with a thread of induction to guide us safely in our rambles through the past ages of our earth, as Lyell has so admirably set forth; for the laws which govern organic creation and the inorganic world are as invariable as the results of their combinations and permutations are infinitely varied, science revealing to us everywhere the perfect stability of causes with the diversity of forms.

So, to understand the past ages of our species, we must first begin by examining its present state, following man wherever he has crossed the waters and set his foot upon dry land. The different nations which at present inhabit our earth must be studied with respect to their industry, their habits, and their general mode of life. We thus make ourselves acquainted with the different degrees of civilization, ranging from the highest summit of modern development to the most abject state, hardly surpassing that of the brute. By that means Ethnology supplies us with what may be called a contemporaneous scale of development, the stages of which are more or less fixed and invariable; whilst Archæology traces a scale of successive development, with one movable stage passing gradually along the whole line.*

Ethnography is, consequently, to Archæology what physical geography is to geology, namely: a thread of induction in the labyrinth of the past, and a starting point in those comparative researches of which the end is the knowledge of mankind, and its development through successive generations.

In following out the principles above laid down, the Scandinavian *savants* have succeeded in unraveling the leading features in the progress of pre-historical European civilization, and in dis-

* Some naturalists see a correspondence of the same sort between embryology and comparative anatomy, for they consider the human embryo as passing during its development through the different stages of animal creation, or, at least, as passing through the different states of the embryos of the different stages of that scale.

tinguishing three principal eras, which they have called the STONE-AGE, the BRONZE-AGE, and the IRON-AGE.*

This great conquest in the realm of science is due chiefly to the labors of Mr. Thomsen, director of the Ethnological and Arcæological Museums at Copenhagen,† and to those of Mr. Nilsson, professor at the flourishing University of Lund, in Sweden.‡ These illustrious veterans of the school of northern antiquarians have ascertained that Europe, at present so civilized, was at first inhabited by tribes to whom the use of metal was totally unknown, and whose industry and domestic habits must have borne a considerable analogy to what we now see practiced among certain savages. Bone, horn, and chiefly flint, were then used, instead of metal, for manufacturing cutting-instruments and arms. This was the STONE-AGE, which might also be called the first great phase of civilization.

The earliest settlers in Europe apparently brought with them the art of producing fire. By striking iron-pyrites (sulphuret of iron) against quartz, fire can be easily obtained. But this method can only have been occasionally used, and seems to have been confined to some native tribes in Terra del Fuego.§ The usual mode has been evidently that of rubbing two sticks together; but, on further reflection, it is easy to perceive that this was a most difficult discovery, and must at all events have been preceded by a knowledge of the use of fire as derived from the effects of lightning or from volcanic action.

The Stone-age was, therefore, probably preceded by a period perhaps of some length, during which man was unacquainted with

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* The history of Danish Archæology has been sketched by T. Hindenburg. (See "Dansk Maanedsskrift," I. 1859.)

† "Ledetraad til nordisk Oldkyndighed." Copenhagen, 1836. Published in English by Lord Ellesmere, under the title of "A Guide to Northern Antiquities." London, 1848.

‡ Nilsson. "Scandinaviska nordens urinvonare." Lund, 1838—1843.

§ Weddell, "A Voyage towards the South Pole in 1822, 1824." London, 1827. P. 167.

the art of producing fire. This, according to Mr. Flourens, indicates that the cradle of mankind was situated in a warm climate.*

The art of producing fire has been perhaps the greatest achievement of human intelligence. The use of fire lies at the root of almost every species of industry; it enables the savage to fell trees, as it allows civilized nations to work metals. The importance is so great, that, deprived of it, man would perhaps scarcely have risen above the condition of the brute. The ancients were already sensible of this. Witness the fable of "Prometheus." As to their sacred perpetual fire, its origin seems to lie in the difficulty of procuring it, thereby rendering its preservation essential.

In Europe the Stone-age came to an end by the introduction of bronze. This metal is an alloy of about nine parts of copper and one part of tin.† It melts and moulds well; the molten mass, in cooling, slowly acquires a tolerable degree of hardness—inferior to that of steel, it is true, but superior to that of very pure iron. We therefore understand how bronze would long be used for manufacturing cutting-instruments, weapons, and numerous personal ornaments. The northern antiquarians have very properly called this second great phase in the development of European civilization the BRONZE-AGE.

The bronze articles of this period, with a few trifling exceptions,

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* Flouren's "De la Longevite Humaine." Paris, 1855. P. 127. Man, from the construction of his teeth, his stomach, and his intestines, is primitively frugivorous, like the monkey. But the frugivorous diet is the most unfavorable, because it constrains its followers perpetually to abide in those countries which produce fruit at all seasons, consequently in warm climates. But, once the art of cooking introduced, and applied both to animal and vegetable productions, man could extend and vary the nature of his diet. Man has, consequently, two diets: the first is primitive, natural, and instinctive, and by it he is frugivorous; the second is artificial, being due entirely to his intelligence, and by this he is omnivorous.

† Bronze is still used for casting bells, cannon, and certain parts of machinery. It must not be confounded with common brass, which is a compound of copper and zinc, much less hard, and appearing only in the Iron-age.

have not been produced by hammering, but have been cast, often with a considerable degree of skill. Even the sword-blades were cast, and the hammer (of stone) was only used to impart a greater degree of hardness to the edge of the weapon.

The Bronze-age has, therefore, witnessed a mining industry which was completely wanting during the Stone-age. Now the art of mining is so essential to civilization, that without it the world would perhaps yet be exclusively inhabited by savages. It is, therefore, worth our while to inquire more closely into the origin of bronze.

Copper was not very difficult to obtain. In the first place, virgin copper is not exceedingly scarce. Then the different kinds of ore which contain copper, combined with other elements, are either highly colored, or present a marked metallic appearance, and are consequently easily known; they are, besides, not hard to smelt, so as to separate the metal. Finally, copper-ore is not at all scarce; it is met with in the older geological series of most countries.

Virgin tin is unknown, but tin-ore exists, of a dark color, and very easy to smelt. However abundant copper may be, tin is of rare occurrence. Thus the only mines in Europe which produce tin at the present day are of Cornwall, in England, and of the Erzgebirge and Fichtelgebirge, in Germany.

But the question arises whether, previous to the discovery of bronze, man, owing to the great rarity of tin, may not have begun by using copper in a pure state. If so, there would have been a copper-age between the stone and bronze-ages.

In America this has really been the case. When they were discovered by the Spaniards, both the two centres of civilization, Mexico and Peru, had bronze composed of copper and tin, which was used for manufacturing arms and cutting-instruments, in the absence of iron and steel, which were unknown in the New World; but the admirable researches of Messrs. Squier and Davis on the antiquities of the Mississippi valley* have brought to light an

* Squier and Davis. "Ancient Monuments of the Mississippi Valley." Smithsonian Contributions to Knowledge. Washington, 1848. It is one of the most splendid archæological works ever published.

ancient civilization of a remarkable nature, and distinguished by the use of raw virgin copper, worked in a cold state by hammering without the aid of fire. The reason of its being so worked lies in the nature of pure copper, which, when melted, flows sluggishly, and is not very fit for casting. A peculiar characteristic of the metal, that of occasionally containing crystals of virgin silver, betrays its origin, and shows that it was brought from the neighborhood of Lake Superior. This region is still rich in metallic copper, of which single blocks attaining a weight of fifty tons have lately been discovered. There was even found at the bottom of an old mine a great mass of copper, which the ancients had evidently been unable to raise, and which they had abandoned, after having cut off the projecting parts with stone hatchets.*

The date of this American age is unknown; all we know is that it must reach as far back as ten centuries at least, that space of time being deemed necessary for the growth of the virgin forests, now flourishing upon the remains of that antique civilization of which the modern Indians have not even retained a tradition.

It is finally worthy of remark that the "mound-builders," as the Americans call the race of the Copper-age, seem to have preceded and prepared the Mexican civilization, destroyed by the Spaniards; for in progressing southwards, a gradual transition is noticed from the ancient earth-works of the Mississippi valley to the more modern constructions of Mexico, as found by Cortez.

In Europe the remains of a copper-age are wanting. Here and there a solitary hatchet of pure copper is found; but this can easily be accounted for by the greater frequency of copper, while tin had usually to be brought from a greater distance, so that its supply was more precarious.

Europe did not witness the regular development of a copper-age. It seems, according to M. Worsaac's very just remark, that the art of manufacturing bronze was brought from another quarter of the world, where it had been previously invented. It was most

* Lapham. "The Antiquities of Wisconsin." Smithsonian Contributions to Knowledge, p. 76, 1855.

probably some region in Asia, producing both copper and tin, where these two metals were first brought into artificial communication, and where also traces of a still earlier copper-age are likely to be found.

An apparently serious objection might be started here, by raising the question how mines could be worked without the aid of steel. This, however, is sufficiently explained by the fact that the hardest rocks can be easily managed by the agency of fire. By lighting a large fire against a rock, the latter is rent and fissured, so as to facilitate considerably its quarrying. This method was frequently employed when wood was cheaper, and is even practiced in the present day in the mines of the Rammelsberg, in Germany, where it facilitates the working of a rock of extreme hardness.

That metal of dingy and sorry appearance, but more precious than gold or the diamond—iron—at length appears, giving a wonderful impulse to the progressive march of mankind, and characterizing the third great phase in the development of European civilization, very properly called the IRON-AGE.

Our planet never yields iron in its metallic or virgin state, for the simple reason that it is too liable to oxydation. But among the ærolites there are some composed of pure iron, with a little nickel, which alters neither the appearance nor the qualities of the metal. Thus the celebrated meteoric stone met with by Pallas in Siberia was found by the neighboring blacksmiths to be malleable in a cold state.* Meteoric iron has even been worked by tribes to whom the use of common iron was unknown. Thus Amerigo Vespucci speaks of savages near the mouth of the La Plata, who had manufactured arrow-heads of iron derived from an ærolite.† Such cases are certainly of rare occurrence, but they are not without their importance, for they explain how man may probably have first become acquainted with iron, and they also account for the

* Pallas. "Voyages en Russie," Paris, 1793, vol. iv. p. 595. There was but one mass of meteoric iron; it weighed 1,600 lbs.

† "Smithsonian Contributions to Knowledge," vol. ii. art. 8, p. 178.

occasional traces of iron in tombs of the Stone-age, if, indeed, this fact be well established.

It is, notwithstanding, evident that the regular working of terrestrial iron-ore must have been a necessary condition of the commencement and progress of the Iron-age.

Now iron-ore is generally found in most countries, but it has usually the appearance of stone, being distinguished neither by its weight nor color. Moreover, its smelting requires a much greater degree of heat than copper or tin, and this renders its production considerably more difficult than that of bronze.

But even when iron had been obtained, what groping in the dark, and how much laboriously accumulated experience did it not require, to bring forth at will bar-iron or steel! Chance, if chance there be, may have played a part in it; but as chance only favors those privileged mortals who combine a keen spirit of observation with serious meditation and with practical sense, the discovery was not less difficult nor less meritorious. We need not, then, be surprised if man arrived but tardily at the manufacture of iron and steel, which is still daily being improved.

In Carinthia traces of a most primitive method of producing iron have been noticed. The process seems to have been as follows: On the declivity of a hill an excavation was dug, in which was lighted a large fire. When this began to subside, fragments of very pure ore (hydroxyd) were thrown into it, and covered by a new heap of wood. When all the fuel had been consumed, small lumps of iron would then be found among the ashes.* All blowing apparatus was in this manner dispensed with—an important fact when we come to consider how much its use complicates the metallurgical operations, because it implies the application of mechanics. Thus, certain tribes in southern Africa, although manufacturing iron and working it tolerably well, have not achieved the construction of our common kitchen-bellows, apparently so simple; they blow laboriously through a tube, or by means of a bladder affixed to it.

* Communicated to the author by mining-engineers in Carinthia.

The Romans produced iron by the so-called Catalonian process, and the remains of Roman works of that description have been discovered and investigated in Upper Carniola, Austria.* The Catalonian forge is still used in the Pyrenees, where it yields tolerable results; but it consumes a large quantity of charcoal, requires much wind, and is only to be applied to pure ore containing but a very small proportion of earthy matter, producing scoriæ. The process, in fact, consists in a mere reduction, with a soldering and welding together of the reduced particles, without the metal properly melting. According to the manner in which the operation is conducted, bar-iron or steel are obtained at will. This direct method dispenses with the intermediate production of cast-iron, which was unknown to the ancients, and which is now the means of producing iron on a great scale.

Silver accompanied the introduction of iron into Europe—at least, in the northern parts; whilst gold was already known during the bronze-age. This is natural, for gold is generally found as a pure metal, while silver has usually to be extracted from different kinds of ore, by more or less complicated metallurgical operations—for example, cupellation.

With iron appeared also, for the first time in Europe, glass, coined money—that powerful agent of commerce—and finally the alphabet, which, as the money of intelligence, vastly increases the activity and circulation of thought,† and is sufficient of itself to characterize a new and wonderful era of progress. From thence we can date the dawn of history and of science, in particular of astronomy.

The fine arts presented, with the introduction of iron in Europe, a new and important element indicating a striking advance. During

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* Jahrbuch der K. K. geologischen Reichsanstalt. Vienna, 1850, vol. ii. p. 199. Carinthia and Upper Carniolia formed part of the Roman province Noricum, celebrated for its iron.

† "The circulation of ideas is for the mind what the circulation of specie is for commerce—a true source of wealth." C. V. de Bonstetten. "L'homme du midi et l'homme du Nord." Geneva, 1826, p. 175.

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the stone-age, but more so in the bronze-age, the natural taste for art reveals itself in the ornaments bestowed upon pottery and metallic objects. These ornaments consist of chevrons, circles, and zig-zag, spiral, and S-shaped lines, the style bearing a geometrical character, but showing pure taste and real beauty of its kind, although devoid of all delineations of animated objects, either in the shape of plants or animals. It is only with the Iron-age that art, taking a higher range, rose to the representation of plants, animals, and even of the human frame. No wonder, then, if idols of the Bronze-age as well as of the Stone-age are wanting in Europe. It is to be presumed that the worship of fire, of the sun, and of the moon, was prevalent in remote antiquity—at least during the Bronze-age, perhaps also during the Stone-age.

The preceding pages present a sketch, certainly very rough and imperfect, of the developments of civilization. They establish, however, in a very striking manner, the fact of a progress, slow, but uninterrupted and immense, when the starting point is considered. The physical constitution of man has naturally benefited by it. The details contained in the treatise of which the present paper forms the introduction, prove that the human race has been gradually gaining in vigor and strength since the remotest antiquity.* The domestic animals also—the dog first, then the horse, the ox, and the sheep have shared in this physical development. Even the vegetable soil has been gradually improving since the Stone-age—at least in Denmark. And yet there are persons who deny all general progress, seeing every where nothing but decay and ruin, like that worthy specimen of a northern pessimist who exclaimed, "See how man has degenerated; he has even lost his likeness to the monkey!"

* This agrees perfectly with the testimony of statistics. (See "Quetelet sur l'hnmme et le developement de ses facultes." Paris, 1835, vol. ii. p. 271.) This work of first-rate merit is very near akin to Archæology. M. Quetelet has just publi:hed a new work, which will certainly be even more remarkable than the first, and which the author of the present paper regrets not to have had within his reach.

## I. KJOEKKENMOEDDING.

General View.—On certain points of the Danish shore there are found heaps, some times enormous, of marine shells, which were at first taken to be natural deposits, indicating an ancient level of the sea higher than at present, or, to speak more correctly, a level of the dry land lower than the present one.

But in the natural deposits along the coast we observe an assemblage of individuals of all ages, young and old, belonging to the littoral mollusk fauna, whilst here the younger are wanting, and we discover merely adult individuals belonging to a small number of species, which have not all even the same habitat, as the oyster and the littorine, and could not therefore be met naturally in each other's company. Neither is the arrangement of the materials conformable to what is observed in natural deposits, where there is always more or less stratification and sorting, according to the volume and weight.

On examining more closely these heaps of shells, it was not long before there were discovered in them broken bones of various wild animals, and among these the bones of some species now extinct; then there were splinters of silex (flint or quartz), with roughly fashioned instruments of the same material, very coarse pottery, charcoal, and cinders.

At the same time most extensive excavations and most minute investigations established the fact that there was in these heaps a complete absence of any metal, whether iron or even bronze, as well as of any kind of domestic animal, except the dog. Here was then unmistakably the refuse of repasts, lying confusedly mingled with the remnants of the primitive mechanical inventions of a people that had resorted to the sea-shore in the most remote antiquity, living on fish and game. These remnants and refuse, accumulated in one spot* during a long series of centuries, have

* Sea shell-fish supply an enormous quantity of refuse, for the very simple reason that the animals are small and their casing is solid and spacious.

been called by the Danes KJOEKKENMOEDDING, from *Kjoekken* kitchen and *Moedding** refuse, rubbish, filth.

The *Kjoekkenmoedding*† are invested with peculiar interest, because their nature excludes the presence of any object of a posterior date. Unless the soil should have been disturbed subsequently, which is always easily ascertainable, and which, on many spots that are now very distant from habitations, never has happened, we are sure that all that is drawn from these deposits does most certainly belong to high antiquity, and has not been brought there at a later time. The *Kjoekkenmoedding* are therefore real zoölogical museums of the animal kingdom, of the fauna, which man found on arriving in the country, and they thus form a link which binds the geological past of our globe with the present historical period. It is for this reason that the Danish savans have, for the last ten years, since 1847, set themselves to investigate the deposits in question with a spirit of research that does them the greatest honor, and which has not failed to lead to results of singular interest. And yet the subject in itself might appear to be somewhat trifling to those who do not consider that every thing in this world is susceptible of being dignified by true genius.

In order that the question might be mastered under every aspect, it was attacked by the united forces of an association very fortunately composed of Mr. Forchhammer, the father of the geology of Denmark, of Mr. Worsaae, one of the greatest archeological celebrities of the north, and of Mr. Steenstrup, a zoologist and botanist, well known to all those who take an interest in the great and curious question of alternating generation and in the no less important one of the formation of turf-bogs.

These gentlemen, all of them professors in the University of

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* This term is found in Yorkshire, England, under the form of *midding*, and with exactly the same meaning.

† The plural in Danish is Kjoekkenmoeddinger. We have retained the singular. In the present memoir all the foreign terms are preserved without alteration in the singular number.

Copenhagen, have published six annual reports of their researches (from 1850 to 1856), addressed to the Academy of Sciences of Copenhagen, and signed collectively by all three. They have also gathered little by little a collection which contains, among other things, some ten thousand specimens of bones, each of which is labeled according to where it was found; this having been determined most carefully. Finally, with a select portion of these materials they have formed in the Museum of Antiquities of the North the admirable creation of Mr. Thomsen, a representation of the *Kjoekkenmoedding*, interesting on account of its size and the judgment with which it has been arranged.

Let us now enter upon the details of their researches:

Geographical Distribution.—The *Kjoekkenmoedding* have been observed in Seeland, especially along the Isefjord, in the isle of Fyen, of Moen, and Samsoe; also in Jutland, along the Liimfjord, the Mariagerfjord, the Randersfjord, the Kolindsund, and the Horsenfjord. The more southern regions of Denmark have not yet been explored.

The *Kjoekkenmoedding* are scarcely found any where but along the fjords and arms of the sea, in places where the action of the waves has little power. Along the shore of the open sea, where the waves waste away, and little by little encroach upon the banks, there are none found. Now, as they must necessarily have also existed there, we may conclude therefore that in such localities there must have been a general encroachment of the sea on the land. There would be nothing surprising in this, for Denmark being composed in great part of very movable ground, which is but slightly elevated above the level of the sea, the action of the waves washes it away and easily eats into the shores.

Ordinarily the *Kjoekkenmoedding* are situated immediately on the edge of the water. At certain points, however, they are met with at as great a distance as two geographical miles from the present shore, but in such cases it can be proved that the dry land

has made an inroad on the sea, either by sand and mud banks, or by the encroachment of turf formations. The shells have never been carried inland to any distance from the ancient shore line.

As regards the elevation at which the *Kjoekkenmoedding* are situated, it is to be remarked that on the shores of Denmark, although so low, they are nevertheless found out of reach of the action of the waves in rough weather; say at some ten feet at least above the present level of the sea.* When the shore is higher the *Kjoekkenmoedding* are found also at a greater elevation.

It is evident that deposits corresponding to the *Kjoekkenmoedding* will be found in a great many countries. Thus, M. Bruzelius, conservator of the Museum of Antiquities of Lund, has just found something similar on the coast of Sweden, near Kullaberg, in Scania.

M. Forel de Morges has discovered on the edge of the sea, near Mentona (Gulf of Genoa), certain caves with deposits containing quantities of shells of edible species, broken bones of animals, charcoal, and splinters of flint, fashioned precisely like those in the north.† Here, then, are *Kjoekkenmoedding* of the age of stone, just as in the north.‡ This discovery is all the more interesting from the fact that it has been some times denied that the south had its age of stone, because the Greek and Roman classic writers do not speak of it. As if a child could relate what had happened previous to its birth!

Lastly, Lyell, Darwin, and others have pointed out deposits of

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* A Danish foot is 0.31376 metres.

† The grottoes and caverns have usually been inhabited in high antiquity. They therefore deserve special attention from archæologists.

‡ Mr. Steenstrup, who has examined the collection deposited by Mr. Forel in the Museum of Turin, finds this correspondence complete, only he has not been able to find any marks of knives on the bones, which are however split and opened for the extraction of the marrow, as in the north.

this kind, due to the habits of savage tribes on the shores of North America, on the coast of Newfoundland, and elsewhere.*

CONFORMATION.—The *Kjoekkenmoedding* present generally a thickness of from three to five feet. There are, however, points, as at Meilgaard and at Kolindsund, where the thickness of the mass attains ten feet. Their extent varies; it reaches sometimes to a thousand feet in length, with an irregular width, never exceeding from one hundred and fifty to two hundred feet. In the case of these great deposits we perceive that their surface is undulating, the mass having accumulated more at certain points than at others. Occasionally, as at the mill of Havelse, near Frederikssund, the deposit surrounds irregularly a space which has remained free and wherein was evidently situated the habitation of the shell-fish eaters. If no traces of these habitations have been left, it cannot be astonishing, for they must have been very wretched huts.

The interior of the deposits alluded to presents no sign of stratification. We remark merely at certain points the predominance of certain species of shells, indicating the particular circumstances of season and fishery. Thus there are found thousands of cockles (*Cardium*) piled up in one place, to the exclusion of every other species.

What has been said relates to the normal type of the *Kjoekkenmoedding*, when the materials have been accumulated on the very locality of habitation. Apart from these points, others are found, situated on the shore and within the field of action of the waves, where the usual materials of the *Kjoekkenmoedding* are mingled with sand and gravel, and where the whole mass is more or less clearly stratified, of which we may see a classical example at Biliat, near Frederikssund. It is evident that at these places the ancients cooked their meals on the very beach, after leaving their boats.

* *Lyell.* A second visit to the United States of America. London, 1850: I. 338; II. 106, 135. *Charles Darwin*, Journal of Researches. London, 1840; 228.

The various fragments which they left were subsequently rearranged by the next heavy sea, which rolled the materials about and mingled them with the composition of the coast deposits. We can understand then how the fire-places, composed of pebbles of the size of a man's fist, have resisted the action of the waves and have remained in their place, whilst the smaller materials have been rolled along with the sand and gravel.

A very singular circumstance is that the *Kjoekkenmoedding*, formed beyond the reach of the waves, present sometimes at their surface a deposit of slight thickness composed of rolled and stratified materials. But this is only observed up to a height of from fourteen to eighteen feet above the present level of the sea, and solely on the counter-slope of the ground turned towards the sea. At Oesterild, in northern Jutland, this stratified coating attains a thickness of one foot and contains pebbles that are occasionally as large as a goose-egg. Above this stratified layer nothing more is found, it is never covered over by new accumulations of shells. It would seem, then, that the age of the *Kjoekkenmoedding* was ended by some catastrophe which violently agitated the waters of the sea, and that the latter then rushed in at a moderate height beyond its habitual boundary.

It is just possible that this event might have occurred at any epoch posterior to the age of the *Kjoekkenmoedding*. Nevertheless Mr. Steenstrup is disposed to consider it as marking the very end of that age.

Flora of the Kjoekkenmoedding.—Of the vegetable kingdom there is left but few determinable remains. Charcoal and ashes are found in abundance in them. The charred vegetable matters have been gathered together, in order to determine to what species they belong, but this investigation is not yet concluded.

It is worthy of notice that there has been found in the *Kjoekkenmoedding* neither carbonized wheat nor a trace of any cereal whatsoever.

There are observed sometimes, not so much in the mass itself of the *Kjoekkenmoedding* as in the soil adjoining them, deposits oftentimes rather considerable of a dark and pulverulent matter, resulting evidently from the carbonization of vegetable substances, which, however, were not wood, and which appear to have had their lye extracted. Chemical analysis revealed the existence of a large proportion of manganese in them, which, according to the researches of Mr. Forchhammer, is also found in pretty large quantities in the *eel-grass* (*Zostera marina*, L.) Now, it is scarcely two hundred years since the eel-grass was employed for making salt. This vegetable was gathered into heaps, which were set on fire, the remains were then sprinkled with sea-water, and on the surface were formed saline efflorescences, which were collected. The product was a salt that was tolerably good, and which people must have been very glad to obtain when there was no other to be had. It seems, then, that the primitive population of Denmark were in the habit of manufacturing salt by the incineration of the eel-grass.

Fauna of the Kjoekkenmoedding.—The four species of shells, of which the greater part of the deposits in question are compounded, are:

The Oyster (*Ostrea edulis*, L.)
The Cockle (*Cardium edule*, L.)
The Muscle (*Mytilus edulis*, L.)
The Littorine (*Littorina littorea*, L.)

These four species, referred to here in the order of their frequency, are all represented by specimens generally large and of vigorous development. The oyster, which is the most abundant species in the *Kjoekkenmoedding*, and which often composes them almost entirely, has now disappeared from all the region situated farther in the interior than the Kattegat, and more southerly than the northern shore-line of Seeland. In the Kattegat itself we meet here and there with isolated living oysters. But there

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is one point only, that between the island of Laesse and the northern extremity of Jutland, where an oyster bed has been regularly worked. It is from this that the city of Copenhagen is partly supplied. At the beginning of this century some oysters were procured at the entrance of the Isefjord, now they are no longer known in that locality,* and, as a matter of course, none are to be found in the innermost parts of the Isefjord. And yet in ancient times oysters abounded there and even throughout its whole extent. The fishing business may have contributed to cause the decrease in the quantity of oysters, but it could never have made them disappear entirely. Besides, the presence in the Isefjord of beds of dead oysters *in situ* plainly proves that it is not the fishery that has destroyed them. Their disappearance in the localities alluded to must therefore be attributed to a diminution of the saltness of the water, which must have become slightly fresher since the ancient times.

This observation is confirmed by what is remarked concerning the cockles and littorines. These two species are still found ordinarily living in the neighborhood of the *Kjoekkenmoedding*, in the inner part of the Kattegat; but they are at present smaller, and do not attain the vigorous development that they did in the old times in this vicinity.

The four species of shell-fish mentioned are all edible and are still used as food by mankind. They make their appearance, for example, in the London markets. The oyster is, however, by far the best; there is scarcely any other which is admitted to the table of the wealthy.

In addition to the four species referred, some others make their appearance, but only as exceptions, in the *Kjoekkenmoedding*, undoubtedly because as food they are very inferior in quality, and

* It is well however to remark, that at this point it was a great numerical increase of the star-fish (*Asterias rubens*, L.), which brought about at the commencement of the present century the destruction of the last generations of oysters.

also because they are less abundant in the Danish waters. They are:

*Buccinum reticulatam*, L.*
*Buccinum undatum*, L.
*Venus palustra*, Mont.

As regards the *crustacea* there are but few remains of crabs found. The remains of fish, on the other hand, are in great quantity.

The herring (*Clupea harengus*, L.) is the most common, but the following species are not rare:

The Cod-fish (*Gadus callarias*, L.)
The Flounder (*Pleuronectes limanda*, L.)
The Eel (*Muraena anguilla*, L.)

The abundance of these remains of fish proves that the primitive population used to fish in the open sea. And yet their craft could scarcely have been any thing more than canoes, formed of trunks of trees scooped out by the aid of fire. One thing is certain, the shell-fish, especially the oysters, could only have been procured by fishing for them in boats, for the sea does not throw them up alive on the shore.

With reference to the eels, it is rather interesting to remark, that their ancient remains abound especially in the localities in which the species still delights at the present day, as in the neighborhood of Aalborg.

Among the birds, it is the aquatic and palustrine species that abound. We meet especially with several kinds of ducks and wild geese.

The presence of the wild swan (*Anas cygnus*) proves, that the *Kjoekkenmoedding* were also in process of formation during the winter, for it is only in winter that this bird makes its appearance in Denmark. On the approach of spring it returns to the more northern regions. It is then, especially, that is heard its harmo-

* *Bucciumm nassa.*

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nious song, partaking of the sound of distant bells and of the eolian harp, whence, doubtless, the myth of its death chaunt.

The wood grouse (*Tetrao urogallus*, L.) is represented by large individuals of vigorous development. We see that the species throve in those countries; but as it feeds chiefly on pine buds, it follows, that in old times the sea-shore was clothed with pine forests, whilst now-a-days these trees no longer grow naturally in Denmark. We will revert again to this subject, when speaking of peat-bogs.

A species which it was very surprising to find in the *Kjoekkenmoedding*, and which it was very difficult to identify, for the reason that museums contain only their skins stuffed with straw, without any skeleton, was the *Great Penguin*, of Buffon, (*Alca impennis*, L.) This bird, about the size of a goose, was totally incapable of flying, having nothing but the most diminutive apologies for wings or arms unfurnished with feathers suitable for flight. It frequented consequently only the small islands where there were no carnivorous animals. In the middle ages the great penguin was found in the islands near the coasts of Newfoundland and Cape Cod, in the United States, then in the islands near the southern shores of Iceland, in the Feroe islands, and at St. Kilda, to the west of the Hebrides. In old narratives and voyages to the Feroe islands we read, that the inhabitants of those regions were in the habit of eviscerating a penguin, thrusting a wick into the cavity of its stomach, setting fire to it, and letting this singular apparatus burn as if it were a lamp, so very fat and oily was the bird. On a little island near the coast of Newfoundland they burned these birds, for want of fuel, as if they were logs of wood, and in this way they cooked one individual by the help of his companion. The species was so abundant on the islands of the coast of America that navigators very frequently calculated upon them as a fresh supply when their provisions were exhausted in a long passage. Whole boat loads were frequently brought on board. It has, nevertheless, also happened, that certain ships' crews, not meeting with the

expected birds, have been driven to eat each other. This species, which was so numerous not very long ago, and of which we still possess a few stuffed specimens in museums, appears now to be completely destroyed and extinct, thanks to the omnivorous intervention of man. It was surmised that it might still be found on a small island to the southwest of Iceland; which is an almost inaccessible rock on account of the breakers. But an expedition that has just been undertaken by Mr. Woolley, to ascertain whether this was so, has not been able to find the lost bird. It is true that Temminck says in his great work on birds, and his words are often repeated by others, that the great penguin is common in Greenland; but the Danes, who are pretty well acquainted in that region, know nothing about it.*

Our domestic fowl (*Gallus domesticus*) has not been found in the *Kjoekkenmoedding*. The well established absence of the two kinds of swallows, inhabiting now-a-days the constructions of men in Denmark, the chimney swallow (*Hirundo rustica*, L.) and the window swallow (*Hirundo urbica*, L.), and then again that of the sparrow (*Fringilla domestica*, L.) and the stork (*Ciconia alba*, Bel.), is nothing very surprising.

The quadrupeds, whose remains are most numerous, are:

The Deer (*Cervus elaphus*, L.)
The Roe-buck (*Cervus capreolus*, L.)
The Wild-boar (*Sus scrofa*, L.)

These three species are nowhere deficient; they constituted evidently the principal food of the primitive population as regards land animals.

The Urus (*Bos urus* or *promigenius*),
The Beaver (*Castor fiber*, L.), and
The Phoca (*Phoca gryphus*, Fab.),

are likewise species often met with, and which have constantly served for food to the primitive population. Now, the beaver has

* Mr. Steenstrup has published a whole treatise on the great penguin in the scientific communications of the Natural History Assemblies of Copenhagen, 1855.

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entirely disappeared from Denmark, the phoca is still seen in the Kattegat, though very rarely, and the *Urus* is an extinct species. Speaking of the latter, it will not be amiss to enter into some details respecting the genus Bos, for species are often confounded. Many persons think, for example, that the wild ox of Lithuania is the *Urus*, whereas it is the bison. Setting aside the decidedly fossil oxen, we distinguish the following species:

1°. *Bos primigenius* (Boj). *Bos urus* (Nilsson). *Bos primigenius* (Owen). Thur, Ur, and Urochs, according to the Germans. A species now extinct, but which must have still been in existence in Switzerland in the tenth century of our era, for it figures among the number of viands that appeared in those days at the table of the monks of St. Gall. The manuscript* mentions the *Urus*, the *Wisent*, and a wild ox which seems to have been simply the offspring of the domestic ox gone back to the wild state, and which, according to Tschudi,† was still hunted in the sixteenth century.

2°. *Bos bison* (Auct). *Urus nostras* (Boj). *Bison europæus* (Leidy). Aurox, so called by the French. The Wisent and Bison of the Germans and the Zuhr of the Poles, Bonasus of the ancients. A species formerly spread all over Europe; no longer found at present except in the forest of Bialowice in Lithuania, where there exists a herd of some seven or eight hundred head, which owes its preservation to the ukases of the Emperors of Russia.

The skeleton of the *urus* is more thick set, squat, and much stronger. His atlas attains the enormous width of twenty-seven

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* *Benedictiones ad mensas Ekkeharde monachi Sangallensis.* Memoirs of the Society of the Antiquaries of Zurich, vol. iii. Here is the passage in question:

> Signet *uesontem* benedictio *cornipotentem*
> Dextra dei ueri comes assit carnibus *uri*
> Sit *bos siluanus* sub trino nomine sanus,
> Sit *feralis equi* caro dulcis in hac cruce Christi.

However *veson cornipotens* and *urus* may here be nothing more than synonyms of the same species. That is, at least, the opinion of Mr. Steenstrup.

† *Tschudi.* The Alps. Berne, 1859.

centimetres—10.63 inches (Museum of Lund). The *bison* is more slender, he is moreover furnished with thick fur and a strong mane, which appear to have been wanting in the *urus*, judging from what the ancients say.

3°. *Bos frontosus* (Nilsson).* Appears to have existed in Denmark only in the domestic state, during the age of bronze and the first part of the age of iron, until about the commencement of the Christian era. There are extensive remains of them in the peat-bogs of Denmark. This species is distinguished from the others by the manner in which the horns are fixed on a lateral protuberance of the skull, and by the gibbosity of the occiput.

4°. *Bos taurus* (L). Corresponds probably to the Bos longifrons of Owen. It is the most generally diffused species, as a domestic race, in the middle ages and at present. Only it attains a more vigorous development than formerly. The wild ox of the park of Hamilton, in Scotland *(white urus)*, is the same species, but in a wild state.

The four species mentioned above present not only differences of race, they are really distinct species. It is only the first, the *urus* proper, which has been found in the *Kjoekkenmoedding*. The second, *the bison*, is missing, but is found, though rarely, in the peat deposits of Denmark.

The elk *(Cervus alces*, L.) and the rein-deer *(Cervus tarandus*, L.) have not yet been discovered in the *Kjoekkenmoedding*. They will doubtless be found therein, for their bones have been gathered among the remains of the stone-age in Denmark.

There are also found in the *Kjoekkenmoedding:*

The Wolf *(Canis lupus*, L.),
The Fox *(Canis vulpes*, L.),
The Lynx *(Felis lynx*, L),
The Wild-cat *(Felis catus*, L.),
The Sable *(Mustela martes*, L.), and
The Otter *(Lutra vulgaris*, Erxl).

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* *Nilsson.* Scandinavisk fauna, II. edit., Lund, 1847, p. 555.

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These species are found more rarely than the preceding ones; they have, however, served as food to man.

The hedge-hog (*Erinaceus europæus*, L.) and the water-rat (*Hypudæus amphibius*, L.) have been found accidentally in the *Kjoekkenmoedding*, where they also find bones gnawed by these rats.

Not the slightest trace has been found of the hare (*Lepus timidus*) in the *Kjoekkenmoedding*. But this can be accounted for when we reflect that the Laplanders and several other nations have a sort of superstitious repugnance for the hare, and would not eat it except when driven to do so by the utmost extremity of famine.

According to what has already been stated, the *Kjoekkenmoedding* have furnished no domestic animal whatsoever except the dog. And even with respect to that, it could not be ascertained *a priori*, whether the bones of the dogs which were found had belonged to a domestic or a wild race. The following is the way in which they have been able to solve the question indirectly.

It was surprising not to find, among the exuviæ of birds, any but the middle part of the long bones, the heads having been broken off very irregularly. Whilst, numerically, the long bones form very nearly the fifth part of the sum total of the bones of a bird, they are in the *Kjoekkenmoedding* from twenty to twenty-five times more numerous than the other. Whence comes this singular preponderance of the long bones? It was thought at first that the ancients had consumed on the spot merely the limbs of the birds, reserving the carcasses for a stock of provisions at sea. This was rather far-fetched. Mr. Steenstrup bethought himself of keeping some dogs in confinement, and giving them for a certain time birds to eat. He then found that all that the dogs left were the same long bones, such as the *Kjoekkenmoedding* present. All the rest had been devoured. Some other carnivorous animal, such as the wolf or the fox, might, it is true, have done the same, although the wolf, for example, generally drags off his prey, and does not devour it on the spot. But as these numerous fragments of birds, thus gnawed, are found everywhere, in all the *Kjoekkenmoedding* that

have been examined and in every part of each of these deposits,* it follows, that the people were accompanied by a domestic carnivorous animal, which is only represented by the dog. This induction is confirmed by the abundance of gnawed bones of quadrupeds. Nearly all the cartilaginous and more or less soft parts of the bones have been irregularly subtracted. Often the marks of the teeth that have gnawed the bone, are sharply defined. Thus one rarely finds a shoulder-blade that has not been gnawed, or a rib whose extremities are entire.

The marks of knives which Mr. Steenstrup observed on the bones of the dog, led him to conclude that the primitive population ate this animal, as is still done in many parts of the globe, in America, Oceanica, Africa, and, as it would appear, even in Europe. Mr. Forel de Morges has asserted that in the Riviera of Genoa they eat dogs, and that rats are considered a delicacy there.

They have not yet found in the *Kjoekkenmoedding* any traces of those young aquatic birds, which are taken in their nests, and of which there is at present a great consumption, in Jutland, for example. It is a dish in great request, and very abundant in certain localities; and there are some islets, perfectly barren in other respects, where the right to collect eggs and young birds produces a very handsome income. We might have been tempted to conclude from the absence of the remains of young birds, that the primitive population absented itself from the localities of the *Kjoekkenmoedding* from the month of May to August. But it is more likely that the dogs caused the disappearance of the smallest traces of the young birds, inasmuch as they left merely the very hard middle part of the long bones of even the adult birds, the splinters of which threatened to choke them. Man himself came in doubtless for his share in the matter, for we know of certain persons even nowadays eating whole quails, without taking the trouble to separate the bones.

The sojourn of man on the *Kjoekkenmoedding* grounds during the autumn, winter, and spring, is also indicated by the degree of

* About forty have been examined minutely.

growth of the horns of the deer and roe-buck, as well as of the embryos and young individuals of these species and of the wild hog, which have been eaten and whose remains are met with. Here again the summer season is not clearly marked, but as the primitive population dwelt on the sea-shore in winter, according to what we have seen, when speaking of the wild swan, it is very likely that it spent the fine season there also, during which it must have been much more comfortable in every respect.

MAN AND THE PRODUCTS OF HIS INDUSTRY.—The *Kjoekkenmoedding* have never presented any human bones. One may possibly meet with skeletons there, but in that case they belong to those graves, often of very recent date, which the inhabitant of the coast digs for the body of the shipwrecked individual that has been cast up by the sea. No ancient burial place of the age of stone has ever been observed there, and we understand in effect, that the primitive population would not bury its dead in such places. Besides, the numerous tombs of the age of stone in Denmark bear witness, by their often gigantic proportions, as also by their contents, to the respect in which the dead were held.

It is here worthy of remark, that there has never been observed in Denmark, either in the *Kjoekkenmoedding* or elsewhere, any signs of cannibalism, though an antiquary supposed that he had found such signs in a cavern in Belgium.* If his observations were of value, we might expect that same fact would be observed in other parts of Europe.

There are sometimes found in the internal mass of the non-stratified *Kjoekkenmoedding*, as there are in the stratified deposits of the sea-shore, fire-places simply formed of a pavement of pebbles about the size of a man's fist. When we can obtain a quite fresh and clean section of a non-stratified deposit, we sometimes observe on each side of the fire-place a little black band, gradually becoming less distinct. This is made by the coal, which had been swept away when a new fire had to be lighted. These fire-places are

* Royal Academy of Belgium, Tome XX., Nos. 11, 12.

not large, they are more or less circular, and their diameter is somewhere about two feet.

Fragments of a very coarse pottery are not scarce. The vases have been molded by hand, and not by a lathe, and the clay has always been mixed with sand, evidently in order that the vases should not crack easily in the fire. This device is still resorted to by certain savage tribes of America; we find them even, when they cannot get sand, substituting for this purpose a powder of ground-shells. One fact had struck the Danish archæologists, namely: that the grains of sand imbedded in this pottery are angular, whilst no sand is found in the country but what is rounded by the action of the waves. They then remarked that the granitic stones of the fire-places, when they had been subjected to the action of fire, were easily reducible to coarse angular sand, corresponding exactly to that found in the pottery.

Mr. Emilien Dumas de Sommières (department du Gard), a much-esteemed geologist, and a great connoisseur in pottery, has observed a very great diversity of materials mixed with the paste of the ancient pottery. These substances seem to vary according to the mineralogical character of the region. Thus it is that in the departments of the Gard, Vaucluse, and Bouches-du-Rhone, the ancient pottery contains generally little rhomboidal fragments of white spathic carbonate of lime. In Auvergne, in the Vivarais, and even at Agde, near Montpellier, where there exist also ancient traces of volcanic eruptions, the place of calcareous spar is supplied in the ancient pottery by volcanic scoria *(peperino)*. Lastly, in Corsica, a few years since, they made use of amianthus in the manufacture of common pottery, which gave it great toughness and tenacity, and enabled it to resist most efficaciously the effects of a blow or of irregular dilatation. Amianthus is also found mingled with the paste of some Chinese vases of common manufacture. It is likewise known that the walls of Babylon and certain constructions of ancient Egypt were built of bricks dried in the sun. In making these bricks they added to the sandy clay which composes them, chopped straw, and even fragments of reeds and other marsh

plants, in order to produce greater strength in the mass. Besides, this necessity for the addition of straw is well established by the fifth chapter of Exodus, which alludes to the refusal of the king of Egypt to furnish the Israelites with the straw required for their work.

The age of stone, as we know, is characterized preëminently by the presence of arms and instruments of flint, or of some other kind of stone, and which are frequently of beautiful workmanship, especially in the islands of Denmark. Now, in the *Kjoekkenmoedding*, it is true that there are found a great abundance of instruments of silex, but they are so very rough and unshapely, that one might take them at a first glance for mere pieces of stone. Nevertheless, with a little attention and comparison it becomes easy to recognize them as wedges or hatchets, chisels, and especially those long and narrow splinters called knives. All these objects are simply hewn by hand, by successive blows with another stone; they are of coarser workmanship than many objects of flint found elsewhere, especially in the tombs. This has caused it to be believed that the *Kjoekkenmoedding* might belong to a first age of stone, which should be distinguished from a second one, to which ought to be attributed the handsome specimens so frequently found in the North, and which bear witness to a general progress of civilization. It is possible that this is really the case, but there is as yet no decisive reason in favor of this opinion. If none but very rough objects are found in the *Kjoekkenmoedding*, it is not very strange; since in ancient times, any more than nowadays, would people be likely to scatter objects of value among their sweepings, and we should, therefore, merely find the refuse of their industry. Notwithstanding, there have really been found in the *Kjoekkenmoedding* some rare specimens of fine workmanship. They are, a lance-head of silex, an arrow-head of silex, and a little hatchet of trap (volcanic rock), of regular shape and nicely bored, all which would certainly not indicate an industry just at its origin. Finally, the bones of the animals which have served as food to the primitive population bear positive witness to the use of well-made instruments. They

(the bones) have been jagged and chipped in divers ways, either when the animal was being cut up or when portions of it were being eaten, and the flesh was separated by means of knives. Now, on examining attentively these marks, we recognize that the primitive population made use of well-ground and keen-edged instruments, which have made incisions in the bone as clearly as a good steel knife would do. A simple splinter of flint, however sharp it may be, and supposing it not to be ground, will leave a mark bearing the character of the saw; that is to say, there will easily be seen in it, by the aid of a magnifying glass, a number of parallel striæ. Therefore, in the age of the *Kjoekkenmoedding* they had already instruments of silex of good workmanship, only they did not fling them away among the rubbish, but they took good care of them, since they must have cost much more labor than our steel instruments.

Besides the rough instruments of silex, already spoken of, there are found in the *Kjoekkenmoedding* a tolerably large quantity of hewn pebbles, but in such a shapeless manner, that the workmen could evidently have had no other intention, when thus preparing them, than to give them sharp edges and angles. Now, if we reflect that an angular pebble will wound much more severely than a round one, it becomes very probable that we are here presented with the offensive projectiles of the primitive population.

Pebbles cut in this way are frequently found in the turf-bogs of Denmark. They were probably thrown in old times, either by hand or by slings, at aquatic birds, and have since become inclosed by the turf in its process of formation in these localities. Let us remark lastly, that in the salt-works of Hallein, in Austria, there were found, together with a bronze hatchet, a little wallet of skin containing two projectiles like those above alluded to.*

The *Kjoekkenmoedding* furnish a tolerable quantity of ends of deer-horns, which have been cut off and broken. It was naturally the refuse only which was thrown away, and so the pieces that were wrought and finished are missing. Nevertheless this refuse shows positively enough that well-ground chisels of silex were used, and that they were managed with skill.

* These articles are preserved in the museum of Salsburg.

Carved bones have also been met with in the *Kjoekkenmoedding*. They were made into awls, chisels, and even a sort of comb very neatly fashioned, which appears to have been used in the manufacture of thongs from sinews.

A circumstance worthy of notice is, that all the solid bones, not hollow, of quadrupeds, are entire, whilst those which are hollow are found, almost without exception, broken, showing frequently the mark of the blow by which they were opened. The primitive people were evidently fond of marrow, which they extracted wherever they found it, either to eat it, or to employ it with brains in the preparation of skins, as is done by the savages of North America.* The hollow bones *(os metacarpi* and *metatarsi)* of ruminating animals, such as the deer and roe-buck, presenting a longitudinal partition, which separates more or less the marrow into two parts, have always been split transversely to this partition in the direction of their length. Thereby the two compartments of the marrow were laid open at one blow, and its immediate extraction was thus rendered easy. The same process is still in vogue among the Laplanders and the Greenlanders, with whom the marrow, still warm from the natural heat of the animal, is considered the greatest delicacy and a dish of honor, which they offer to strangers and to the employés of the government. The dexterity with which these people thus open the bones of the reindeer, is said to be surprising. It is to be noticed, however, that they split the hollow b nes of the reindeer longitudinally, and parallel to the middle partition, which is very thin in this species.

Another circumstance affords its testimony to the practical sense of the primitive people of Denmark. It is that, for the fabrication of instruments and objects of bone, they have been clever enough to select and to profit by that portion of the skeleton of the animal whose structure offers the greatest density and strength, namely: that on the inner side of the radius.

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* *Hearne.* Voyage du Fort du Prince de Galles a l'ocean Nord en 1769 1772. Paris, vol. vii. p. 343. "The Indians prepare the skins with a lye made of brains and marrow."

# American and Foreign Intelligence.

*Malingering.* By Tom. O. Edwards, M.D., Chicago.

You were kind enough to print my article on Malingering, and I fulfill my promise to continue the subject. In that communication I referred to increased and diminished size of parts, to the production of tumors by inflating the subcutaneous tissue with air, the similation of ascites hydrocephalus, dropsies of joints, malformation of joints, curvatures of the spine, wounds, ulcers, superficial inflammations, spasmodic affections, as epilepsy and hysteria and paralytic affections, and endeavored briefly to point out the diagnostic signs between the real and feigned diseases mentioned. There came under the classification of diseases obvious to the senses another class of diseases not obvious to the senses, but dependant upon the description of the impostor. We may divide this class into diseases of exalted or reduced sensibility, of pain, or absence of sensation.

The obscurity which ever has and ever will enshroud the nervous system, render the efforts of the physiologist in his inquiries of the cause of exalted sensibility in pain, extremely obscure and unsatisfactory. Increased sensibility in a part may exist and no visible sign of its presence, hence this symptom is more frequently assumed than any other from the great success and unanimity with which it is practiced. There are many external pains, such as tic dolereux, the causes of which are obscure, and which leave no visible sign of their existence, and yet no disease is more formidable in suffering or less amenable to treatment. Men have committed suicide rather than endure the torture of a disease, which externally gave no evidence of its presence. Upon the patient's statements we are compelled to rely for information in relation to the seat and violence of such affections, and we cannot be too careful in giving opinions in a disease the only element or phenomenon of which is pain, as gross frauds may be the result of our diagnosis, or patients in real disease may be regarded as feigning. The nature of the pain, the presence or absence of the symptoms of disease with which it is ordinarily associated, the general character and appearance of the patient, and the consistent account given of the cases are important items for observation. We should guard opinions in examination of diseases in which pain alone is the cause of complaint, and should rely on time and accident to expose the fraud. Internal pains are mostly assumed, as those on the exterior are regarded as trivial, and a train of phenomena, such as heat, redness or unnatural color, are not unusually attendants on the real suffering. Gout and rheumatism are favorites

with Army Malingerers. Neither of these diseases can exist in severity without inducing changes in their locality. Heat, redness, tumefaction or retraction of the parts are characteristic of these diseases. True, there may be slight cause of complaint, and from peculiarity of organization or fretfulness of temper the case may be magnified. We have also pains, severe and long continued, from scurvy and syphilis, the seat of which cannot be ascertained. The Malingerer will seldom submit to severe agents in these assumed external diseases. He will most commonly ask if nothing milder could be used, and if his request be acquiesced in, he will be better or worse until he is assured severe treatment will be instituted and then he is suddenly cured.

Internal pains selected by one feigning illness will, if properly managed, lead to detection. Thus a patient complains of constant agonizing pain in the head; he has no vertigo, no loss of sleep, fever or delirium; he says he has violent, deep-seated pain in the stomach and bowels, and neither impaired digestion nor loss of appetite be present; pain in the kidneys, and there is no retraction of the testicle nor diminution or alteration in the urine. Should any or all these necessary attendants upon these diseases be absent, and only pain be complained of, we have grounds of suspicion which it would be well not to disregard. If these pains are said to be constant and intensely violent, and yet the patient sleeps well and enjoys his food, there is room for doubt. We should avoid the exposure of our suspicions and be careful in our prescriptions. If we desire to place him under the influence of anodynes, they should be administered in food, as the sagacity of the patient may detect the purpose and he will measurably thwart our purpose.

The most astute minds have been imposed upon by the assumption of pain, and long, protracted, fatal suffering has been declared feigned, and the patient deprived of sympathy and kindness. Fodere relates a case in which he mistook real pain for feigned. "I refused (he says) for fifteen years, a certificate of exemption to a young soldier, who complained of violent pains, sometimes in one limb, and sometimes in another, and occasionally in the thorax and pericranium, without any external sign to indicate its existence. He died in the hospital from the effects of the malady—which he always insisted was a species of rheumatism. I examined the body after the death—viewed all the former seats of disease—but discovered nothing, either in the membranes, muscles, nerves, or viscera, and was hence led to believe that life was destroyed solely by the repetition and duration of these pains." Bitter was his mortification and regret that he had persisted so long in opposing the wishes and depriving the soldier of his discharge, and in the leniency of the rememberance of this case, the following one was presented to him. An artillerist from the Hart de Bonce, was brought to the hospital with a violent pain in his left leg, which was attributed to sleeping on the damp ground. Dur-

ing the space of eight months, a variety of antimonial preparations, together with mercurials and tonics, when indicated, were administered, with local remedies, but without any relief. The leg, from the repeated use of epispastics and cauteries, became thin, and rather shorter than the other, while from the low diet ordered there was a general paleness and lankness of the system. Under these circumstances, Fodere could not refuse him a certificate, as a real invalid. With the aid of his crutches he dragged himself to Versailles, where he obtained the promise of a discharge. He was ordered to return to the fort to await its arrival; but on his way thither, being overjoyed, he was met by his commander, walking without his crutches. On being put into prison, he confessed the fraud. It will require close observation and an intimate acquaintance with real disease to detect those of which pain is the most prominent symptom, as no words can adequately describe the difference. A general set of phenomena must be carefully sought and traced to their origin, such as gesture, expression of countenance, posture, and uniformity of symptoms.

Diseases attended by diminished sensibility are frequently assumed, and sometimes successfully. The most common is Amaurosis, and so successfully can this be assumed, that no possible means, other than careful watching, can detect the fraud. The pupil is dilated; the eye is learned to roll, and a feigned inability to fix the sight upon an object, are the symptoms. These are produced by the use of agents that act upon the nerves of the retina, and produce dilatation. Hyoscyamus, Belladona, etc., are locally employed in cases of this disease; when recent we may by carefully examining the patient be enabled, by the absence of all gastric derangements and febrile phenomena, to be put upon our guard, and by putting a strict watch upon the actions of the patient, time will develope the rest. Fodere recommends the placing of the patient on a precipice, and ordering him forward. If there be real blindness, this procedure would be cruel and fatal, and was exhibited in a case of a recruit who was suspected of assuming blindness, being put on the bank of a river and ordered forward. He went forward and was rescued, but afterwards confessed the fraud. Myopia, Amblyopia, Nyctalopia, Hemaolopia are all diseases found among Malingerers. We detect the Myopist feigner by putting on him glasses worn by persons known to be thus afflicted, or by placing a book close to his eyes and observe his efforts at reading.

No diseases are more difficult of successful treatment than those of the ear. Deeply encased within the bony enclosure, we have but limited means of investigating the changes induced by disease, and we are less familiar with diseases of the ear than any other organ. Deafness is therefore frequently assumed, but he who attempts the fraud must either be a bold or a skillful man. Those who are really deaf acquire a peculiar physiognomy and have certain gestures difficult to acquire, and are sometimes detected by a want of preparation for a sudden examination; yet

the ingenuity and perseverance of some have put at fault the most skillful examination, and time and artifice have ultimately unmasked the impostor. Fodere, to whom we are indebted for most ingenious means of detecting the various frauds in disease, as well as the use of the most cruel tests, with all his observation, was frequently imposed upon. He examined a deserter alleged to be deaf. Every possible means failed, until Fodere assumed a patronizing air, assured him he should be discharged if he confessed to him privately. The man's prudence was betrayed, and to the whisper of Fodere confessed the imposture. Another instance of the intentional dropping of a piece of money, attracting the patient's attention, and thus exposing him after various tests, such as firing pistols, or platoons of musketry, without the least affecting him. A constant watch should be set upon the actions of the suspected person, and matters calculated to excite or alarm his fears should be introduced in conversation. Put your hand upon his pulse, detail some bad news, or terrible disaster, or threaten punishment, and you will generally perceive its increased action. Call them suddenly by name, fire a pistol closely to the ear, rouse them from sleep, or put them under the influence of ether, and on awakening the sense of hearing may be aroused and the will not enabled to control it. A very good way to test the truth or falsehood of a case occurred in a neighboring city a few years since. A man presented himself and by signs requested alms. The physician suspecting fraud, motioned him to sit down, and placing a note in his son's hand, told him to pretend to get that changed, but in reality to find a police officer, as this man's description answered well that of a man accused of having committed murder the night before, and he would have him arrested. The boy had scarcely left before the beggar hastily departed.

To assume to be deaf and dumb requires extraordinary skill, yet our books are full of cases resisting the most rigid and persistent examination. The means used to detect the imposition of deafness may be successfully employed in such cases as firing a pistol, or communicating startling or threatening information when examining the pulse. The double infliction is seldom present unless it be congenital, as the powers of articulation are never lost unless there be some cause appreciable to medical inquiry. Indeed it is a question whether the entire absence of the tongue is a sufficient cause for muteness, as cases are recorded of persons articulating without the tongue. In these instances the muscles belonging to the tongue probably were not deficient. As a general rule it may be stated that if a person not deaf can *move* his tongue he is not dumb, as nothing short of complete paralysis can account for his being dumb. Three cases are recorded of the entire loss of the tongue, yet articulation was distinct—a Portuguese girl, a boy having lost his tongue by gangrene, and an American girl—the history of each interesting and instructive. Also the history of Victor Fay, detected by Fodere, is one of the most successful and persistent cases of assumed muteness on record. He persisted two

years; deceived the most scientific men in three countries, and finally was detected by mutes in a school designed for their special education. Those possessing Fodere's work will find in this case abundant food for reflection, and will be guarded in hasty prognosis.

We are frequently consulted by parents in relation to children at certain ages not talking, and our utmost skill and character are sometimes necessary to quiet apprehensions, or prevent the charlatans receiving credit for that which medical acumen and time will avert. A professor in a neighboring city lost the confidence of a family by not appreciating the fears and apparently sympathizing with them, or not sufficiently informing them, in the case of a child unable to articulate. She was five years old and had not spoken; heard very well; was sprightly and intelligent, but labored under chorea, and as a consequence the general health of the child was impaired. The professor prescribed a general routine, gave but little information as to the origin of the defection, and was superceded by a specialist, a publishing ear doctor, who carefully examined the case, observed the free motions of the tongue, prescribed a change of air, generous diet and preparations of Iron, with the certain promise of the speedy acquisition of the power of language. The case terminated favorably, and a flaming certificate brought many patients to the *skillful aurist.*

Diseases consisting of whole groups of symptoms are sometimes feigned. A disease to which all are subject and which probably destroys primarily or consecutively more lives than others, is fever, which can be most fully counterfeited. The frequency of the pulse, chattering of the teeth and hot skin, may all be induced for effect. The use of strong stimulants, as brandy, gin or cantharides, also the introduction of capsicum, garlic or cloves into the rectum will produce a glow of skin similating fever. The brown tongue of typhoid fever is readily produced by ext. liquorice or coffee browned. I saw a family thrown into the greatest distress by a favorite son having been brought home frightfully excited, with violent vomiting and dilated pupils. The head was hot and between the paroxysms of vomiting; the skin was intensaly hot; pulse irregular, sometimes frequent, then slow; articulation indistinct. Cold was applied to the head and sponging to the body during the excitement, and after that stage had passed warm brandy toddy restored strength and consciousness. The boy had made his first assay on manhood that day, by trying to learn to chew tobacco and had incautiously swallowed the juice. These symptoms were indicative of a severe paroxysm of fever, violently implicating the brain and stomach. Violent exercise with friction may excite the warmth and redness of the skin, and these present with a colored tongue all the phenomena of fever. A few hours watching, if any doubts exist, will remove the obscurity, as the symptoms in these cases rapidly subside. A profoundly intoxicated man would embarrass a physician who failed to smell the breath of the patient, and not a few are the mistakes

of casual observers, and severe animadversions have been passed on opinions of the existence of disease where intoxication only was present. I remember a mistake of this kind which not only influenced public opinion detrimentally to the doctor, but did more to overthrow opinions of the whole class of the Thompsonian fraternity in Maryland. As other popular illusions it had overcome the bounds raised by law for the protection of life, and all men were allowed the privilege of practicing and charging, by repeal of laws existing from the origin of the State. A shoemaker in Washington county bought a patent and forgetting the maxim, *ne sutor*, etc., had so imposed on popular credulity as to have at one time the largest practice in three of the most populous counties. To test the doctor's skill (whose pretensions were the ridicule of all sensible men, and, unhappily, there as here they are not over numerous), a profoundly intoxicated man was placed in bed by a party and the doctor suddenly summoned, and informed that from an upset from a sleigh the patient had been thrown on a curb stone and it was feared a fractured skull had resulted. The doctor carefully examined the case and very oracularly stated, "that the brain were not hurt, but that the patient would certainly die, and it was his wish that the body should be examined by the calomel doctors, as one thing was plain—that a *Gut are broke.*" Unfortunately for the doctor, a few hours sound sleep restored the patient, and the jest was too good for silence. No other argument was used in reply to the skill and success of the doctor than the ominous words that a "gut are broke," and in a much shorter time than had sufficed to give him the reputation and practice he had acquired, he disposed of his fine horses and is now engaged in his legitimate business.

As coma from fever or injuries of the brain and spine, differs in some respects from that induced by alcohol, the nose affords the best diagnosis. Also from disease resulting from the use of tobacco, in which coma exists, we have the fœtor of the breath to direct our inquiries.

Agues are feigned, *i. e.* the chill part. If no fever follows, we may be assured, after frequent repetition, that this is assumed. A gentleman of my acquaintance had a negro boy whose services were valuable, and who had a recurrence of fits of ague for several weeks. Three or four days nursing and treatment would check the paroxysms; but a return was constant, and the physician finding the health of the boy not impaired, by their frequent recurrence, gave him tinct. ant. and jalap. The boy returned at the usual period, and when about to receive the unpleasant compound, drew the handkerchief from his head and thought he was better, and as he could not get a seidlitz powder, declined taking anything, and did not return. As before observed, those who feign sickness are averse to active or unpleasant treatment. A mixture in the Eastern hospitals, called, for want of an official name, Mistura Diabolica, has performed most miraculous cures. It is composed of assafœtida, Glauber's salts and aloes, and is given in

very small doses, frequently repeated, so as constantly to impress the mouth with its nauseousness.

The diseases of the chest are more readily diagnosed, although formerly pneumonia was in the army, and now is, frequently assumed. It is unnecessary to put any educated physician on his guard in this disease, as his stethescope will detect the malinger; but by wounding the throat, hœmoptisis may be induced or pretended; mucous expectoration by constant hawking and coughing may also be produced; emaciation by abstinence or drinking acids, or by constantly sucking a copper coin may impair the tone of the stomach and thus induce disease. This is not uncommon in the army, and is traced to foreign importation.

The diseases of the abdominal cavity are assumed, and dyspepsia is the form. Care and watching can detect the fraud, as gastralgia, pyrosis and vomiting can be produced at will. Inflammation of the stomach is also assumed. The absence of the red papilla on the tongue and the long intermissions in vomiting are grounds of suspicion. Peritonitis and Hepatitis were much feigned in the British army in East India stations, and many discharges were granted soldiers for these diseases. After a time the urine was found colored with rhubarb; clay stools induced by muriatic acid; but the colored eye and skin, together with the listlessness and mental depression consequent upon this disease being absent, the surgeons suspected fraud, and the mixture Diabolica performed most remarkable cures, and was more successful than mercury. Nephritis is sometimes assumed. This is not difficult in the male to detect, as the retraction of the testicle is the guide. In the army, after severe attacks of Nephritis, the patients bring calculi alleged to have passed the urinary passage—found on analysis to be pebble, brick-bat or glass. In conclusion, as a general rule we would not be justified in treating diseases assumed to be feigned differently from the real. Low diet, strict confinement to bed and nauseous medicines may be the effectual plan and will generally succeed. It is but fair to malinger ourselves and to lead the patients by questions into incongruous and incompatible answers, to detect by a fraud that which cunning and artifice had formed for our disgrace and their benefit. The impostor is ever averse to taking medicine, careful watching, visits at unusual and unexpected hours. This proceeding detected one case of five months' deception.

The absence of motive for assuming disease is not conlusive that it is real. Some from desire for sympathy of friends and others from no explicable cause than moral insanity, assume to be ill; yet it is well at all times to endeavor to obtain the motive, as this may be a clue to the whole disease. The previous history of the patient and in the army the opinions of his comrades may serve to enlighten. In some cases, however, previous moral character will not be altogether reliable, as men of most unexceptional conduct have imposed on army surgeons. Searching the beds and pockets will sometimes reveal the irritating substance that pro-

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duces an obstinate ulcer; and if an accomplice is suspected, perfect isolation will reveal all you want—the cause and the cure; and a thorough chemical test or microscopic examination of foreign matter alleged to be discharged, should be made.

I have thrown these thoughts and compilations together with the hope that some aid may thereby be given to a class of overworked and neglected men now in our army, who are subjected to more imposition and mortification, more expected from them, and less remuneration, than any other human being. I mean army surgeons; and will have succeeded if I have aided even *one* in his responsible and heavy duties.—*Chicago Med. Jour.*

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[From the American Medical Times.]

## *Foreign Correspondence.* By Prof. CHARLES A. LEE.

### LUNATIC ASYLUMS.

447 LOUVRE HOTEL,
PARIS, August 30, 1862.

In my last letter I gave some account of the colony of Fitz-James and the lunatic asylum connected with it, at Clermont (Oise), conducted by Dr. Labitte. I was accompanied in my visit, as I have also been to several other asylums, by Dr. Brown, of the Bloomingdale Insane Asylum, near New York, who is inspecting similar establishments in Europe, at the request of the Trustees of the Sheppard Asylum at Baltimore, Md. This institution was founded by the late Moses Sheppard, a wealthy merchant of the Society of Friends, who, several years before his death, conceived the project of testing the curability of unfavorable cases of insanity, by a more liberal expenditure of money than the friends of most asylums would reasonably permit. To this end Mr. Sheppard, having no relatives, left his whole fortune, amounting to six hundred thousand dollars, to found and maintain an experimental institution for one hundred patients. After several years of careful consideration, the Trustees of the Sheppard Asylum have commenced the construction of their building, on a plan submitted by Dr. Brown, who now studies the organization and management of European Asylums, to report whatever may serve to carry out the humane purposes of the benevolent founder of this unique institution. Dr. Brown, after having visited the most celebrated asylums in Great Britain, Holland, Germany, Switzerland, and France, expresses regret at having found, thus far, but inconsiderable reward for the commendable liberality of the Board he represents.

I have also visited the most noted institutions of this kind in England and France, and, with the exception of the agricultural colony at Clermont, I have seen nothing deserving of special commendation which is not also found in our own country. Indeed, I

think, as a general rule, we are considerably in advance of the old world in the successful treatment of the insane, and our statistics will show a larger percentage of cures than can be found in the large majority of European asylums. And it is very natural that it should be so. Americans are the most practical people in the world; they are not easily led to adopt novelties merely because they are novelties, but which have nothing else to recommend them; but they speedily introduce every improvement which is founded in reason and common sense, and which promises any practical benefits, wherever it may have originated. The unreasonable and obstinate prejudice which exists in Great Britain, against adopting anything new from foreign countries, fortunately does not exist among us, and hence we are never found lagging far behind in the race of improvement, and the march of civilization. Hence, Prof. Ackland, M.D., of Oxford, who accompanied the Prince of Wales in his recent visit to the United States, expressed surprise that American physicians should visit Europe to examine lunatic asylums, for they would find better ones at home, as at Philadelphia, under the charge of Dr. Kirkbride (and, I may also add, at Bloomingdale, under the charge of Dr. Brown), than can be found in Europe. Such I know to be the opinion of the most enlightened physicians of England, Germany, and France, who have made themselves acquainted, by personal observation, with such institutions on both sides of the Atlantic.

In England I visited, among others, the great establishments of Hanwell, Colney Hatch, Bethlehem Hospital, etc., also the private asylums of Dr. Conolly and others, but I saw nothing which is not well known and carried out in the United States. The Commissioners of Lunacy have, no doubt, effected many reforms, and corrected many evils, though they have not always sufficient power to carry out the improvements which they recommend; still public opinion, sooner or later, corrects the evil, and the public reap the benefit of their wise and practical suggestions. Such Boards are needed in our own country, and it is to be hoped that it will not be long before all our States will adopt a similar measure. There will, necessarily, be more or less clashing and friction between such boards and the trustees and managers of insane asylums, but this is incident to all supervisory bodies, and must be expected. Still, the evident benefits and improvements which they effect is a sufficient answer to the objections sometimes brought against them.

In company with Dr. Hills, of the Ohio State Lunatic Asylum, I visited the great lunatic establishment at Charenton, which is designed by the French government as the model institution of the kind in France. It is organized on a grand scale, more than six hundred thousand dollars having been recently expended in its reconstruction. It is situated on an elevated plateau, or rather terraces, protected from northerly winds by the parc of Vincennes, and commands an extensive prospect of the valley of the Marne and the Seine. The numerous sections, all furnished with gal-

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leries, courts, lawns, etc., allow of more classifications than can be found in any of our asylums. There are fountains in all the courts, and water is abundantly furnished for baths, etc., to every part of the establishment. The courts and buildings, also, are all lighted with gas, made on the premises, which is introduced into all the rooms and dormitories.

All of the rooms fronting the river command a very extensive and beautiful prospect, and the pay patients are each furnished with a separate apartment, and a place for the attendant to sleep. Both male and female wards are connected with extensive gardens and forests, where they walk a considerable part of every day. There is a farm, also, connected with the establishment, where the patients are "invited to labor," some of whom accept the invitation. But I could not learn that many of the patients were engaged either in gardening, horticulture, or agriculture; for there is not that system of organized labor which is so successfully carried out at the "colony" at Clermont. Many of the females are employed in needle work, embroidery, etc.; and there is a professor of music attached to the institution, who gives daily lessons in music; there is also a library, lecture-room, billiard-room, etc., provided for their recreation and amusement. Some are taken out in carriages to ride, music and dancing parties are held twice a week in the grand saloon, and as many of the customs of the world and French society are introduced as is thought useful or expedient. The establishment is placed under the authority of the Minister of the Interior, and is presided over by a director appointed by the Minister. There is also a "Consultive Commission," whose members are taken from the "Council of State," the "Court of Cassation," and the "Court of Accounts," appointed also by the Minister, and whose services are gratuitous.

The annual allowance for the establishment is proposed by the director, with the advice of the consultive commission, and approved by the Minister, to whom an annual report is made. The financial affairs come under the cognisance of the "Court of Accounts." Dr. Cabmeil is the Physician-in-chief, aided by several resident assistants. A chaplain also resides in the institution, who daily celebrates mass in the chapel. All the religious services are celebrated with the usual pomp of the catholic church, accompanied by the organ.

The dormitories are spacious, well lighted, and airy, and the passages warmed by iron pipes under the floor; but it struck me, as well as Dr. Hills, that there was generally a lack of proper ventilation. The day was, however, very hot and sultry, and no air stirring.

Patients are received here as boarders, and gratuitously on an order from the Minister, who has a certain number of *bourses* at his disposal, to be applied for a limited time in favor of persons having a claim on the government. There are three classes of boarders: the first, those who pay 1425 f., and upwards; the second, 1125 f.; and the third, 828 f., including washing. Certificates

signed by medical men, not more than a fortnight before admission, are to be presented on behalf of lunatics previous to their admission, and certain formalities have to be complied with. Having a general ticket of admission to all the hospitals of France from the Minister of the Interior, we were freely shown through every part of the establishment, which, we have no doubt, is admirably managed. The ordinary means of physical restraints are here employed to a considerable extent, and are, in my judgment, preferable to padded rooms and complete isolation, as practised in the British institutions, as society seems indispensable to recovery. The establishment now contains about nine hundred patients.

The great Hospice *Salpetrière* is both an alms-house and a hospital, chiefly for incurable, epileptic, or lunatic female patients, and patients advanced in age. It contains 5204 beds, of which 2917 only are occupied by real patients. It is an immense establishment, consisting of forty-five distinct buildings, extending 1680 feet in length. The hospital receives, first, the *reposantes*, women who have been in its service thirty years, and who are upwards of sixty; second, indigent old women, upwards of ninety, afflicted with incurable maladies; third, insane and epileptic females. The lunatics, of whom three-fourths are considered dangerous, are kept in separate infirmaries and treated with the greatest care. I saw several hundred of them sitting at the supper-table, each with an ample allowance of wine, and a plate of ripe plums and apricots, besides bread, etc. It was a delightful sight to see the cheerfulness of the old ladies, and hear their merry chat as they partook of their evening meal.

The *Bicêtre* is situated on lofty ground, differing in this respect from the Salpetriére, and enjoys a more salubrious air than most of the Parisian hospitals. It is an asylum for indigent old men and male lunatics, and receives about two thousand patients. It presents a square of nine hundred feet on each side, and contains three courts. The indigent and infirm old men occupy the greater part of the building. They have no private rooms, but there are large rooms with workshops and dormitories, as also several gardens and court-yards for exercise. They are obliged to work three hours a day at their respective trades, or other occupations, and receive in return a share of the profits; the rest goes towards defraying the expenses of the establishment. The daily allowance to the indigent is a portion of soup, a pound and a quarter of bread, four ounces of meat for dinner, vegetables or cheese at night, and a quarter of a pint of wine. The average daily cost of each is nine sous (cents), and the total annual expense about nine hundred thousand francs. The number of lunatics, idiots, and epileptics is about nine hundred, who have the same allowance as paupers, except a larger allowance of bread. Physical restraint, by strait jackets, etc., is very common. Generally, however, the treatment is very mild, and daily employment is given on a model farm and bleaching-ground, where there are also sties for breeding swine of superior breeds. This farm not only supplies the establishment,

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but produces sufficient to partly supply the other Parisian hospitals. There are various kinds of schools in the establishment for lunatics of all ages. Instrumental concerts are often given by the patients. Voisin, Delasiuave, and Moreau are the physicians having charge of the lunatics.

There are also numerous private lunatic asylums in the neighborhood of Paris, the most celebrated being that founded by Esquirol at Ivry, Dr. Marcet, of the Bicêtre, being resident physician; the *Maison de Santé du Chateau, Sainte-James, près Paris*, and the *Maison de Santé* of Dr. Blanche, at Passy. The establishment of *Sainte-James* is near the Bois de Boulogne, and is carried on by Dr. Casimer Pinel, the nephew of the celebrated Pinel. It is a very extensive old chateau, built in the reign of Louis XV., and in the style of that age, and was occupied during the reign of Louis Philippe by M. Thiers, his minister, the distinguished historian. The grounds, which occupy several acres, are handsomely ornamented with flowers, shrubs, and trees, artificial lawns, grottoes, and bodies of water, etc. There is a large and productive kitchen-garden, and a variety of fruit trees. The walks are pleasant and well shaded, and there is a commodious billiard-room excavated from a solid rock. There are several buildings appropriated to the patients who belong to the wealthier classes, and pay from seven to twelve hundred dollars annually. Nearly all have their own servants. The two sexes occupy distinct premises. The attendant sometimes occupies the same room with the patient, but more frequently an adjoining one, separated by lattice-work. The fire and lights are also placed in the servant's room, and are inaccessible. The main building seemed to me very poorly adapted to the purpose of an insane asylum, many of the rooms being small, and not being well lighted or ventilated. The Doctor is a member of the Legion of Honor, and an author of distinction. He very politely gave me several of his works on insanity. He is a great advocate for the use of prolonged baths, and long continued dripping of cold water on the head in certain cases of insanity, and has written a treatise on the subject. He has also written a work on the "Isolation of the Insane," which he deems advisable in a large majority of cases; not at home, but in a public or private asylum, and indispensable for the poorer classes. He insists on the great importance of resorting to it at as early a period as possible, and believes that the incurable cases originate from a neglect of isolation in the beginning of the disease.

The Doctor resorts to the usual modes of physical restraint in all violent cases, and where the patients are inclined to injure themselves or others. He is about sixty, of affable and agreeable manners, and enthusiastic in his specialty. He numbers about forty patients. The private institution of Dr. Blanche, at Passy, is also located in an old chateau of the age of Louis XV., built by Prince Carignan, and occupied by his descendants for many generations. During the French Revolution it was occupied by the Princess Lamballe, who was seized in this very house and dragged before

the Revolutionary Tribunal, to be brutally murdered by the mob before she could reach the guillotine. Extensive additions have, however, been made by Dr. Blanche, so that it is now tolerably well adapted to the purposes of such an establishment. The premises occupy several acres, which are well laid out in walks, pastures, lawns, etc., and planted with ornamental trees and shrubbery. Each patient has his own attendant and a separate apartment. Each patient pays, on an average, about one thousand dollars annually—some more, some less. Physical restraints are freely used, as preferable to padded rooms. Dr. Blanche does not believe in isolation, nor in prolonged baths, nor water drippings on the head. There may, possibly, exist some rivalry between him and Dr. Pinel, for they are rather antagonistic on many points. The Doctor spoke highly of Arnot's water-bed for paralysed cases. To the question, why general palsy was more frequent than formerly, Dr. Blanche replied that people lived faster than they used to, used up their nervous agency sooner than they formerly did, which I conceive is the true explanation. He said that domestic unhappiness was a very frequent cause of insanity; that there were few happy marriages in France; that those in Paris could easily be counted; that most of those who lived together were not man and wife, etc. I hope he is mistaken.

Dr. Blanche showed Dr. Brown and myself every part of his establishment, and explained fully his views in regard to the management of the insane. He has about eighty patients, and his terms, as will be seen, are about the same as those of Dr. Pinel. This must suffice for the public and private lunatic asylums of France. The subject is far too vast to be treated satisfactorily within the limits I have allotted myself; but there are other topics, at least as interesting, which demand our notice, and which will receive attention in future communications.

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*Influence of First Impregnation on Succeeding Offspring of Mother.*—Mr. Bullock Webster, writing to the *Times* from Algiers, on the subject of marriages of consanguinity, confirms the well known facts of the influence of a first impregnation on the character of all succeeding offspring by the same mother. "The system," he says, "of breeding in and in, as far as my experience goes, even in what may be considered the finest bloods, has always produced greater aptitude to fat, small bone, and tendency to disease. Clever physiologists may account for this, but I should like to know how they can explain this one significant fact, viz.: that an Arab mare that has once had a colt by a half-bred horse can never again breed a pure Arab; the colts, even after any number of years, always taking, to some extent, after the horse she first bred by. The same rule holds good with regard to all our breeds of short horns or Hereford cattle, Leicester or Southdown sheep, Fisher Hobbs' pigs or his pointers.—*Med. Times and Gaz., Sept.* 6, 1862.

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—We select the following description of the Springs of Vichy from one of Prof. Charles A. Lee's interesting letters to the *American Medical Times:*

"There is no country in the world where mineral waters are held in higher estimation than in France. This is shown by the fact, that the preservation and management of all the important mineral springs are under the direct control of the government, and form a distinct bureau under the minister of agriculture, commerce, and public works. They are now under the immediate charge of M. Nanta, Chief of the Division of Mines and Manufactories. He is aided by a *Consulting Hygienic Committee* consisting of nine members, of which M. Rayer, Dean of the Faculty of Medicine and Physician in ordinary to the Emperor, is president. Thirteen other physicians of eminence are designated by government to aid in the deliberations and consultations relating to mineral waters; and their names are annually published in connection with the other officers of State. Besides this, the *Imperial Academy of Medicine* has a permanent standing committee on mineral waters, consisting of six of its most distinguished members, besides a leading chemist. Besides these, there is an *Army Council of Health* under the minister of war, who have a voice also in regard to the use of mineral waters; of this, M. Vallant is President and Medical Inspector.

"There are, in all France, one hundred and sixty-five mineral springs of greater or less celebrity; the most important of which, already stated, belong to and are controlled by the Government.

"Vichy may undoubtedly be placed at the head of these, if we consider the reputation it enjoys, and the number of invalids who annually resort hither to make trial of its waters. The Emperor may be said to have taken it under his especial patronage, as the Empress has that of *Eaux-Bonnes*, for he occasionally takes up his residence at Vichy in July, and protracts his stay till late in August, or rather, till the great national fete of the 16th of the month. It is well known that he has been somewhat of an invalid for several years past, and it is generally believed that he finds the use of the waters extremely beneficial. Some idea may be formed of the popularity of the waters, when I state, that up to the 15th of September, 1861, 16,440 strangers had visited the place, and up to the 20th of August of the present year, 15,483 patients had registered their names, besides 1,324 servants who accompanied them. These, as the register shows, came from every country in Europe, and a considerable number from North and South America, and the West Indies. There can be no doubt that some fashionables are attracted hither by the presence of the Emperor, but the vast majority to try the medicinal effects of the waters.

"There is nothing attractive in the appearance or situation of Vichy; it is a hot, dusty place, far more so than our Saratoga, while its surroundings are far less agreeable. It consists of the old and new town; the streets of the former narrow and irregular, while the houses are mean and ugly; but the new portion is better

laid out, though still without much order or regularity, the houses being built of the same light-colored sandstone which is universally used all over France. It lies on the left bank of the Allier, a moderate-sized river, in summer occupying a tenth part of its ordinary channel; nine hours by express train from Paris, on the Orleans line of railway. There are numerous *grand* hotels; everything is grand in France; even the principal spring here gose under the name of *Grande-Grille!* The price of board, including rooms and the use of the salon, is from one to three dollars or more per day, according to extent of accommodations. A patient, however, as at our own watering-place, can adapt his expenses to his means. All the hotels have a *table d'hote*, but the patient can resort to a restaurant, and thus live at less than half the expense. There are some establishments chiefly patronized by the fashionable, who resort hither for gambling or amusement, such as the hotels Guillermin, de Paris, Germot, &c. Lodgings generally have to be secured in advance; one-half the residents seem to be in the confectionery line, for their shops are filled with pastilles and sugar plums, made with Vichy salts, sugar, and flour, or gum and *'sucre d'ogre,'* a 'digestif alcalin,' very much in vogue.

"The springs, nine in number, were first taken possession of by Napoleon I. in 1810, who opened a park, and authorzed the acquisition of the necessary land. The large establishment was erected in 1820, but it was not till 1845 that the government took entire control of the waters. The second thermal building was erected in 1858. These are large and commodious, and display considerable architectural taste. There are 306 bath rooms, and 39 separate rooms for *douche* baths, which seem to be greatly in vogue. In 1853, the government sold 100,520 bath tickets, and sent out 361,000 bottles of the water. In 1857, 105 tickets were given out, including 27,000 gratuitous, and 700,000 bottles of water sold; in 1861, 280,000 bath tickets sold, and 1,250,000 bottles of water sent out and sold, and all this in addition to the immense quantity of the dry salts, extracted from the waters, and the *pastillei*, made for the government from the same salts and distributed over the kingdom. Thus it will appear that these mineral waters are a source of no small revenue to the government, and are annually becoming more and more profitable. The presence of the Emperor and the increasing pecuniary value of the waters has given quite a spur to improvements recently; manifested by the formation of a new park and ornamental grounds on the banks of the Allier, the construction of a new suspension bridge, the exterior of the railroad from St. Germain des Trosses to Vichy, and the erection of many handsome seats and villas in the neighborhood. I visited the large establishment for extraction of the natural salts, which is in charge of a special agent appointed by government, and every precaution is taken to prevent fraud by adulteration or substitution, and the same of the water sent out in bottles. So extensive is this distribution, that there is scarcely any part of the world where the natural Vichy water, or its salts, cannot be had. The remedial properties must be reserved for my next letter."

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*Clinical Remarks on a peculiar Form of Disease of the Jaw in an Aged Patient.*—Familiar as he was with diseases of the jaw, and he had seen as many examples as most surgeons, here was an instance, Mr. Fergusson remarked, of disease he had never seen before or read of. About the middle of June the patient had called upon him with a letter from a friend. He noticed something wrong with his jaw, and on looking into his mouth, he asked if he had a bit of potato in it. To his astonishment he found it was a growth upon the jaw. Some surgeons would call it fibrous; but it was a form of disease which he had never met with previously in this or any other part of the body. It looked like vegetable matter, or greatly elongated papillæ. He could not undertake to give it a name. It was something like malignant disease; and a question arose as to what ought to be done.

The friend who wrote to him (Mr. Fergusson) had operated several times. It would, perhaps, have been better to have removed the whole of the jaw; but he did not like to submit so old a patient to such an operation, for his age was eighty years. He selected a milder method, that of cutting the disease out instead of making a large wound in the cheek. He removed on this occasion (June 21st) probably the greater part of it, together with its base. It certainly was not unlike medullary disease. He thought he had succeeded in taking away the whole of it. If there should be any left, he expected to remove or destroy it by means of chloride of zinc. We shall see, Mr. Fergusson observed in conclusion, when the granulations spring up, the process the disease may take; and we must look upon the present case more as an instance of the curiosities of pathology than of surgery.

It may be remarked, that the disease was confined to the right side of the lower jaw, and looked like meat that had been mecerated for a long time, and had become bleached of a pinkish white color.

On the 12th of July it became necessary to repeat the operation; for although but three weeks had elapsed since the last occasion of removal, the tumor had grown very rapidly, and in general characters resembled its predecessor. It was cut away chiefly by means of curved forceps, and portions of it were scraped from the bone. With regard to the last, very little of it was left, and Mr. Fergusson mentioned that it was necessary to proceed with caution in such an old patient.

After remaining about another fortnight in the hospital, the patient left for the country. Up to this time there had been no further recurrence. The cicatrix was, however, touched with the chloride of zinc.—*Lancet*, Sept, 6, 1862.

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*Excision of Nerve in Neuralgia.*—Dr. Markoe related to the New York Medical and Surgical Society (June 1, 1862), a case of a clinical patient on whom he operated for tic-douloureux, by the removal of a portion of the inferior dental nerve. The man had suffered during a period of ten years, several attacks annually.

During the past two years his sufferings have been almost without cessation, and aggravated occasionally by very severe paroxysms. Section of the supra-orbital nerve had produced little or no effect; the mental nerve had also been divided without relief.

The pain had lately become localized in the mental and dental branches—occasionally radiating to upper branches. A removal of a portion of the dental nerve was advised. This operation was performed. The bone was laid bare and chiselled so as to expose the canal of the inferior dental nerve. One inch of the nerve was removed. It seemed congested and considerably hypertrophied, but microscopic examination did not detect any change of structure. The relief of the pain was almost immediate. He has had but one slight paroxysm of pain since the operation, six weeks ago, and is now well enough to return to his occupation. Dr. Markoe thought the case remarkable for the rapid subsidence of pain after the operation. The sensibility of the jaw is being gradually restored.

Dr. Parker, in connection with the discussion that followed, related a case where he removed an inch and a half of the posterior tibial nerve for neuralgia, affecting the ramifications of this nerve in the foot. The pain subsided for a time after the operation, but returned. The limb was then amputated. The specimen, which is now in the muesum of the College of Physicians and Surgeons, shows that the continuity of the nerve was restored after the operation, either by the formation of nerve or of substance capable of preforming the function of nerve.—*Am. Med. Times*, Aug. 9, 1862.

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*Human Remains of Remote Antiquity.*—At the meeting of the Ethnological Society, held on the 1st inst., Mr. Mackie described the human remains found at Markham, in the Valley of the Trent. The skull possesses very peculiar characteristics, and belongs to an extinct and per-historic race of men. Its most remarkable feature is the unusual direction of the foramen magnum. The direction of this plane, indicating an approach, though in very remote degree, to the head of the gorilla and the chimpanzee, leads to the inference that the individual to whom it belonged was possibly not completely erect in his carriage, The other human bones discovered, including those found at the Heathery Burn Cave, belonged to the same pre-historic race of men.—*Med. Times and Gaz.*

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*The New Process for Preserving Meat from Putrefaction.*—This process, shown at the Exhibition, is to extract the atmespheric air by means of a vacuum, and then to admit nitrogen or azote. This permeates the substance of the flesh, and prevents the putrefactive change which would otherwise ensue.—*Lancet.*

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*The Italian Campaign of* 1859—*Medico-Chirurgical Letters from General Head-Quarters.* By Dr. A. BERTHERAND, Principal Medical Officer of the First Class, etc. etc. Translated for the AMERICAN MEDICAL MONTHLY.

From Castiglione to Cavriana—A Battle-Field—The Wounded of Solferino and the Amputations at the Ambulance Station of the General Head-Quarters.

TO DOCTOR F. BERTHERAND:

*My Dear Brother*—Battle-fields succeed and resemble one another with such uniformity in this Lombard land, the sadly privileged arena of war, that I will employ neither my time nor yours in detailing my journey from Castiglione to Cavriana, on the 26th of June, across the desolated regions of Solferino and Cassiano. For the first half of the way, the contest, rendered more desperate by the bare, unprotected nature of the ground, had swept away every trace of cultivation like an avalanche or an inundation. The vigorous stalks of the Indian corn lay prostrate everywhere, tangled and matted in the trodden earth of the furrows. The long files of mulberries, the pride and the fortune of these rich plains, mutilated by grape, now stand only as ranks of decapitated trunks.

Of the boundary stones which mark out the fields from Castiglione to Mantua, as indeed on all the highways of Italy, some are torn up, others dashed into fragments, while those least injured bear terrible scars. Amongst piles of shakos, knapsacks, uniforms, and shattered arms—lies here a broken-down wagon—there the entire load of a caisson thrown out by the Austrians to lighten their flight. A little farther on, wheels and broken axles attest the precision of the fire of our new artillery. The walls of Cassiano and Solferino let the sun shine through them, pierced in the morning for defense, riddled at night by assault.

Between these two villages a piece of the enemy's artillery had been overturned in a ditch by the roadside, and its drivers being unable to drag it out, had abandoned it. Alone—like that other last friend of misfortune in the *Convoi du Pauvre*—the dog belonging to the battery would not leave the piece under which habit, and it may be affection, held him enchained. His restless barking and plaintive and despairing howls seemed to reproach his master with forgetfulness of that fidelity which honor should compel in the soldier's heart, and of which a new and touching expression was revealed by the instinct of this brute!

I promised, my dear friend, not to stop too long by the way: I leave on the left, then, these steep counter-forts, intrepidly carried by our troops, retaken, lost, taken yet again by the Austrians, and

finally left victoriously in our hands. This square pyramid, planted on the crest of a hill, like a light-house on the end of a promontory—but, to *watch*, not to *enlighten* the neighborhood—is the *Tower of Solferino*, la Spia dell' Italia. Despite the brutal shocks of the cannon, there still remain fragments enough of the old feudal manor, long to consecrate this burial-place of heroes. A group of soldiers whose eyes were fixed with attentive curiosity upon a small mound of earth, showed me the spot where, the night before, the Emperor and his escort were the mark of the enemy's balls. One of them struck the horse of the Surgeon-in-Chief, Baron H. Larrey, a little in front of the shoulder. Hæmorrhage from the external jugular made the immediate application of a ligature to this vessel necessary; after which, our learned inspector resumed, with no sign of emotion, the place which a glorious heritage has assigned him during this campaign, the post of honor and of danger.

It is eleven o'clock when we enter Cavriana, a miserable straggling village, whose ordinary resources have been still further reduced by the catastrophes of war. The imperial party could find but a single dwelling for their shelter on the night of the 24th, and this had been occupied until the last moment of the fight as the General Head-Quarters of the enemy. Thus, at an interval of a few hours, two Emperors had sat down under the same roof, at the same table, on the same memorable day, which was to determine for them fortunes so opposite.

Every one was, therefore, reduced to camping out under the walls of Cavriana, and my ambulance corps not being able by any mode of reasoning to claim an exception, I did as everybody else did. To cap the climax, a temperature of 84° in the shade soon changed our tents into sudatoria, in which it was impossible to stay, even flat on our backs. As for myself, I should never have been able to reduce to order the reports which the Surgeon-in-Chief and the Commissary demanded of me, but for the hospitality, not altogether disinterested, I imagine, of an old woman who lived near by. The presence of the soldiers evidently made her anxious for her back-yard, her mulberries, and her kitchen-garden; and she was probably not sorry to place her property, for the time being, under the protection of an *embroidered collar*. But to come to my report, of which the following is, in brief, the substance:

"Including three amputations of the thigh, performed immediately upon our arrival at Cavriana, among the wounded Austrians, whom we found laid under the gallaries of a miserable guard-house, and whom for want of any other suitable premises, I was obliged to use my authority to quarter in the principal church of the village, the total number of operations performed at the ambulance station of the General Head-Quarters, from twelve o'clock on the

24th to the same hour on the 25th, amounted to forty-three. This number was composed of the following details:

| | | |
|---|---|---|
| *Amputations.* | Thigh | 7 |
| | Leg | 4 |
| | Arm | 9 |
| *Disarticulations.* | Forearm | 3 |
| | Shoulder | 4 |
| | Two fingers | 2 |
| | One finger | 8 |
| | One entire median phalanx | 1 |
| | One terminal phalanx | 5 |
| *Resections.* | Two metacarpals | 1 |
| | One phalanx | 2 |
| | Total | 43 |

"11 of these operations were done by myself;
7 by the Principal Medical Director, M. Leuret;
7 by Surgeon-Major of the 1st Class, Leroy;
2 by Surgeon-Major of the 2d Class, Lecomte;
2 by Surgeon-Major of the 2d Class, Jacquemin;
7 by Assistant Surgeon-Major of the 1st Class, Guiches;
3 by Assistant Surgeon-Major of the 1st Class, Riolacci; and
4 by Assistant Surgeon-Major of the 2d Class, L'honneur.

"Though administered indiscriminately to all these cases, chloroform did not cause the slightest accident. We must not omit to mention here its singularly variable results as regards the promptitude with which insensibility was induced, and the precursory phenomena of anæsthesia. While the wounded Austrians dropped, so to speak, asphyxiated, as if struck by lightning, on the first inhalation, the French, laboring under a high state of nervous excitement, entered, as soon as the effects of the chloroform began to be felt, upon a stage of most energetic contraction, extremely difficult to control, and quite impossible entirely to subdue. I was the more struck with this condition from the fact that I had never noticed anything of the kind in my administration of chloroform to the numerous wounded of the different expeditions of Kabylia, in Algeria, or among the Kabylians themselves. I ought to add, too, that privates were especially affected in this way, to the almost total exclusion of the officers.

"A single death followed immediately after the operations just enumerated. The case was that of an officer whose thigh was amputated very high up by M. Leroy, for a badly comminuted fracture of the femur. Forty-three other wounded men have died, the victims of lesions which grant little grace—those of the chest, of the head, and especially of the abdomen."

I have a few remarks to make touching the operative procedures which were employed. The circular method, offering a sure, simple, and generally easy manipulation, still remains the classical method, preferred by military surgeons. My object in performing

several amputations or resections, in the presence of our *confrères* of the General Head-Quarters, by means of a single anterior or lateral flap—with complementary circular section of the soft parts, in the cases of the thigh and leg—was especially to demonstrate the superiority of this mode of operating. More expeditious, inasmuch as it dispenses with the laborious dissection of a sleeve of integument, it assures regularity and a good degree of thickness in the stump; and it avoids the inconvenience of corrugated central cicatrices in the application of an artificial limb. Finally, favoring the prompt union of the soft parts, the mere weight of the flap bringing it down over the oozing surfaces, it prevents better than any other mode the projection of the bone or conicity of the stump. In the articulations of the extremities, take, for example, the shoulder, when the injury to the bone throws a doubt on the expediency of resection, what an advantage is gained by uncovering the seat of the difficulty by means of a large flap, and thus being able thoroughly to appreciate the extent of the wound, and with a complete acquaintance with its cause, to decide the operative indications dependent thereupon!

A unique case of hæmorrhage, occurring at Castiglione in the case of an officer, a short time after the dressing of an amputation of the arm, necessitated the ligation of the humeral artery in the wound. Dr. Leroy arrived in time to remedy the accident, and the patient has recovered. Was this a case of loosening and dropping off of the ligature as it is conceived may happen from the effects of the jarring of transportation? Or should we rather suppose that in the hurry and excitement of an operation performed upon the battle-field, a false knot had been applied? A third supposition is that the brachial, temporarily obstructed by a clot or a plug of muscular tissue, may have escaped the thread of the operator.

Let me say, in passing, and without offensive allusion to any one whomsoever, the ligation of arteries, after amputations, should be regulated not by the jets of blood which present themselves, but by an exact anatomical acquaintance with the principal vessels of the region. If they retract themselves from the surgeon's sight, they must be patiently and persistently sought for.

How often have well-known arteries been supposed to be abnormal, rudimentary, or wanting, and yet given rise to secondary hæmorrhage! I can cite an example of recent occurrence, the better as it concerns myself. Performing an amputation of the forearm, at the upper third, at San Martino, I was unable to discover the radial, nor was there any trickling from it. Wearied by fruitless searches, I at last decided to apply the dressing. In half an hour after it was dripping with warm blood. Removing the dressing, I finally succeeded in seizing my artery, which was oozing from the middle of a contracted and extremely dense fibrous envelope. I was obliged to cut through this in order to disengage the mouth of the vessel, which was deeply retracted. I ligated it, and the danger was over.

Besides the capital injuries which led to the amputations recorded above, I find in my notes as having been all visited and dressed:

8 fractures of the facial bones.
6 fractures of the thigh (amputation not performed).
2 fractures of the head of the humerus (amputation not performed).
1 fracture of the wrist (amputation not performed).
1 fracture of the tarsus (amputation not performed).
4 wounds of the head.
1 wound of the spine (lumbar).
2 penetrating wounds of the abdomen.
1 fracture of the leg (amputation not performed).
2 wounds of the bladder.
1 wound of the chest.
2 fractures of the forearm (amputation not performed).
1 wound of the pubes, with rupture of the urethra.
1 fracture of the hand.
1 wound of the larynx.
1 deep wound of the thigh, the projectile buried in the ilio femoral muscles.
1 triple wound of the left hip, the right thigh and the left elbow; this last, complicated with a comminuted fracture of the joint and a considerable loss of arterial blood, led to the immediate amputation of the arm in its continuity.

I. Wounds of the face, generally complicated with fractures of the teeth or jaws, imperatively demand the extraction of splinters of the first and second order; that is to say, those which are loose and those which are still somewhat adherent. To fulfill this indication properly, demands repeated examinations in the sinuses, the fleshy portion of the cheeks and the nasal fossæ under the tongue, and even into it when it is involved. When bony points protruding into the interior of the mouth threaten the safety of the tongue, or lead us to fear a subsequent interference with its functions, or deformity, they must be carefully resected. The difficulty is thus greatly simplified, and the duration, so tedious to the patient, of the fœtid discharge of wounds bathed in saliva, much abridged. These little operations, after which the wounds in question should usually heal well and rapidly, were often complicated at Castiglione with hæmorrhages from the arterioles lodged in the anfractuosities and canaliculi of the bones of the face. The tampoon not proving always successful in checking the flow of blood, we employed the persulphate of iron, which M. Monsel has proposed to substitute for the perchloride; our experiments are not yet sufficiently conclusive to enable us to pronounce definitively on the relative efficacy of this styptic. I give a few especially remarkable specimens of this kind of lesion.

A., a corporal in the 72d of the line, was struck under the lobe of the left ear by a ball, which, penetrating transversely and horizontally, passed out under the lobe of the right ear. I introduced

successively my finger and a female sound along the course of the projectile, and discovered that it had grazed the posterior columns and posterior surface of the velum of the palate and lacerated the tonsils. There was no hæmorrhage nor a single splinter in this wound, which, when we consider the nature of the parts which surround it, was truly extraordinary.

M. M., a captain in the 11th Regiment of Artillery. The ball entered the middle of the lower lip and passed out behind the mastoid process of the left side. Destruction of the symphysis of the chin; extraction of a large splinter; hæmorrhage arrested by the persulphate of iron.

C., 1st Zouaves, 3d Battalion, 4th Company; ball passing from the right commissure of the mouth to the middle of the ascending branch of the maxilla of the same side. Extraction of several splinters at the orifices both of entrance and exit. Removal of two teeth left entirely bare.

Captain S., of the Engineers—a ball entering under the symphysis of the chin, and passing out between the lower lip and the anterior surface of the corresponding incisors. The margin of the bone is cut and broken, without destroying the continuity of the inferior maxilla.

In the case of G., a private of the 34th of the line, the ball, before penetrating the superior maxilla of the left side, between the ala of the nose and the labial commissure, lacerated the cheek in such a manner that the face presents a hideous spectacle. After having washed the wound and removed all the splinters, Principal Medical Director Leuret proceeded to adjust the lacerated strips of flesh by means of interrupted sutures, and succeeded in accomplishing a very useful restoration of the lip and nostril.

II. The fractures of the thigh in which we thought it our duty to reject, or at least to defer, amputation, justified our attempts at conservative surgery, by offering the following conditions: 1st, Simple or slightly comminuted fractures of the thigh, with the surfaces of coaptation more or less irregular, but without marked deviation of the extremities from the axis of the bone, as is observed when there is crushing or splintering of the bodies; 2d, The immediate extraction of the splinters, which are loose or slightly adherent, and of inconsiderable size; 3d, The absence of grave complications, of hæmorrhage, of foreign bodies buried in muscular regions, etc.; 4th, The ability to remove the patient to a short distance from the field, in order to apply promptly, and at the same time without subsequent removal, the local and general means of treatment which his condition demanded.

Such was the situation in the case of Col. S., chief of the Engineer Staff of the 1st Corps, wounded on the outer side of the left thigh, at its upper third, by a fragment of a *ricochet* ball, which was extracted at the moment of receiving the wound, under the form of a small metallic disc. Assuring myself by palpation that the fracture was very simple, I applied Scultet's apparatus, with Surgeon-Major Jacquemin's assistance, and the Colonel was imme-

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ately carried to Brescia in his carriage, in which I caused a swinging litter to be arranged. All accounts received of him up to the present day promise a favorable union. Of the five others in the same category I have, as yet, no itelligence.

The official correspondence of the surgeons of hospitals in the interior of Italy announce to the Chief of the Medical Service of the Army, it is said, an altogether unlooked-for proportion of probable cures of fractures of the thigh, rescued from the harsh sentence of amputation. We earnestly pray that these facts, thoroughly verified and carefully registered, may prove so numerous and authentic that precise inductions may be drawn from them with regard to two points: 1st, The absolute curability of comminuted fractures of the thigh in armies; and 2d, The relative chances for the recovery of the patient with or without amputation.

III. Division-General L., of the 1st Corps, and Colonel M., of the 1st Zouave Regiment, were both wounded in the shoulder by balls. In the case of the first, the ball hollowed out a gutter along the external face of the head of the humerus. There seemed to me to be no complete fracture of the bone, only a splintering to a slight extent. I removed the loose fragments, leaving the other to the eliminative efforts of suppuration. The General has since received a ball in the right groin, which, making its way horizontally towards the left groin, glided between the integument and the muscles in front of the pubes, as far as the superior insertions of the femoral adductors. Neither the finger nor the sound can detect any thing at the end of this long tract, nor does any prominence or hardness denote the presence of the lead from without. The corresponding coxo-femoral articulation is free; there is no pain, no difficulty of locomotion. Nature's must be the care of preparing its ultimate extraction, by an inflammatory process, terminating in an abscess; unless, indeed, accommodating herself to the presence of a foreign guest, she preserves it by surrounding it with an isolating cyst—a termination sometimes observed, but of slight probability in this case, considering the great motility of the region involved.

Colonel B.'s wound is equally severe, and even more curious. This officer contracted the habit, during a tour in Sweden, of wearing a flannel vest lined with buckskin. The projectile, striking the prominence of the shoulder, passed through all the clothing except the lining of the vest, which, yielding under the pressure, followed the ball like the finger of a glove, without tearing, to the very centre of the head of the humerus. The fact of the lining being whole, and its peculiar situation, contra-indicated any search for the body which caused the wound. I could only recognize the good condition of the bone and the absence of crushing and splintering, and remove a few grains of osseous matter from the wound. Not only was an operation useless in my eyes, but I thought it my duty to forewarn the patient against any propositions of resection that might hereafter be made to him by others. The result up to

this time has justified my prognosis: the injury is being repaired well, and quite rapidly.

IV. I will cite farther, as attempts at conservative surgery crowned with success:

1st. The removal of the second and third fingers of the right hand, which I performed in the case of Commandant P., of the 5th Hussars, whose hand was horribly torn by a musket-ball. Beyond a small abscess in the palmar region, this wound, now under the skillful care of Assistant Surgeon-Major Miche, is daily progressing to cicatrization.

2d. The case of Captain P., of the 1st Regiment of Zouaves, whose cubitus and radius had been fractured by a ball passing over the posterior surface of the forearm. The sentence of amputation had been pronounced, and the wounded man, resigned to his fate, begged that the operation might be performed as soon as possible. Examination of the parts showed me a fracture double and comminuted certainly, but with a small number of short splinters, which could easily be extracted. Under such circumstances, what necessity is there for haste, particularly in the case of an upper extremity, where, with a little careful watching, secondary amputation will always find a timely indication?

3d. Commandant K., of the 72d Line, struck with a ball, which entered at the inner side of the articulation of the os calcis and the astragalus, and was extracted from under the skin of the dorsal region of the foot, against the external border of the cuboid. Numerous splinters were removed, resulting in the formation of a wide, free canal in the centre of the tarsus, having an inclination favorable to the escape of pus. Constant cold irrigation was employed. Its present condition is very satisfactory.

V. The extreme gravity of wounds of the skull, of the vertebral column, and of the abdomen, explains why we observe so few of them, in comparison to lesions of other parts of the body. They are, in fact, the wounds which produce immediate death most certainly.

Colonel B., of the 43d of the Line, presented a considerable loss of substance of the right parietal bone, with destruction of the *dura mater*, permitting the pulsations of the brain to be distinctly seen, in a portion of that organ, which protruded considerably through the opening. No symptom of paralysis or of compression for the first five days. On the sixth, acute encephalitis terminated his sufferings.

In the case of Captain B., of the 84th Line Regiment, who was struck with a ball full on the vertebral column, at the level of the eleventh dorsal vertebra, I witnessed hyperæsthetic phenomena of the most violent character. This unfortunate officer was instantly seized with paraplegia Raising himself upon the bed which he occupied in the Civil Hospital, and writhing in the most agonizing sufferings, in his despair, he shrieked aloud for death. Inspection of the wound furnished no surgical indication of a nature to procure for him the slightest relief. The probability is, that the spinal

marrow was irritated by spiculæ of bone, or by the roughness of the ball, altered in shape by striking the spine. Opium could scarcely bring momentary ease to the wretched man. He died after the expiration of several hours of fearful agony.

Lieutenant-Colonel B., of the 44th Line, pierced by a ball through the right loin, at the level of the kidney. The small intestine is implicated. Pressure and percussion reveal abdominal effusion. Vomiting on every attempt to drink his *tisane*. In the course of the evening peritonitis makes its appearance, and fæcal matters appear at the orifice of exit, in the centre of a fungoid protrusion of omentum. Death after forty-eight hours.

VI. As an instance of a wound of the genital organs, I cite the case of Captain T., of the 15th Line. A ball struck him a little above the crest of the right ileum, and was extracted near the middle of the left groin. This long passage is fortunately subcutaneous for its entire length, but the penis must have been injured at its root. I question the patient, but he insists that he has lost no blood by the urethra; however, he has not urinated since receiving the injury. An exploring sound, introduced into the canal, stops at the pubes, where it enters a sort of *cul-de-sac*, (the track of the ball,) and immediately an abundant discharge of blood takes place through the catheter. I am ignorant as to what has become of this officer, in whom, be it understood, I allowed the sound to remain.

VII. General D. had his foot in the stirrup to mount, when he received a ball in the fold of the left buttock, which penetrated from behind forwards, in the direction of the pelvis. On his arrival at Castiglione I examined the wound, and my finger, reaching the ischium, finds this apophysis denuded and rough. Has it been broken or pierced by the projectile? Has the bullet, which evades all our investigations, fallen into the pelvis, or, reflected by the tuberosity, has it changed its course and entered the fleshy mass of the abductors of the thigh? In any case, the sharp pains which shoot along the sciatic nerve, the depth of the lesion, the extent and irregularity of its course, and the fracture of the ischium—limited, as we suppose it to be—indicate, in our eyes, serious danger.

VIII. I shall not stop long to consider penetrating wounds of the chest, whose interest lies principally in the subsequent progress of the effusion. To speak of them, I should need to follow my cases for a long time—longer than is permitted me. But the following is an example, as sad as it is rare, of the terrible consequences which may ensue from a lesion of the upper part of the respiratory apparatus. A private of the 1st Regiment of Zouaves was struck in the neck by a ball, which destroyed the middle portion of the thyroid cartilage. Although the foreign body was extracted and the wound dressed in the usual manner, the air passing out forcibly by this opening penetrated the cellular tissue of the anterior cervical region. The œdema reached the glottis and the surrounding tissues. In vain are the parts explored; in vain do we attempt to free the trachea from its obstructions, and to re establish the

passage of the air by the introduction of a sound: the wounded man, unable to bear any interference, tore off every dressing, repelled every manipulation, and went off to die at the end of the ward in the most agonizing spasms of suffocation.

IX. A wound of the elbow, followed by amputation of the arm, in the case of a Corporal of the 74th Line, deserves to be reported, from the singularity of the projectile which caused the injury. This young soldier had the elbow-joint pierced through and through by the square stick of a congreve rocket, (more than a yard long and two-thirds of an inch thick) The most extraordinary part of it is, that this javelin remained implanted in the limb, whence he himself drew it, and made use of it as a cane to assist him in walking to the ambulance. On examining the joint after amputation, I pointed out to the assistants a quantity of fragments of wood firmly fixed in the articular cartilages, among the osseous splinters of the humerus.

X. One of the most interesting incised wounds of the campaign is, unquestionably, that of Lieutenant D., of the Mounted Chasseurs, who received a sabre stroke across the face at Solferino. The entire lobe of the nose, with portions of the cheeks, and a considerable extent of the upper lip, were detached. Being thus turned inside out, they fell, by their own weight, in front of the chin, leaving bare the superior dental arch, the anterior segment of which was separated, with its four incisors, two canines and one molar. A suture, very dexterously applied by M. N. Perier, Principal Medical Director, so perfectly adjusted the borders of this immense solution of continuity, that the external deformity is scarcely noticeable. The loss of a part of the palatine arch, indeed, interferes somewhat with articulation; but this difficulty can easily be remedied by the aid of an artificial obturator.

XI. Authors on military surgery have related such very extraordinary facts with regard to the inclosure of projectiles of a large size as compared with the region in which they have been found buried, that such observations, although bearing most trustworthy signatures, have with difficulty acquired a place in the annals of the art. I confess that, for my own part, I have never been able to divest myself of a certain amount of distrust in regard to them. It is not without a motive, then, that I call attention to the two following cases.

Captain P., of the Algerian Sharpshooters, (a temporary regiment,) had the first phalanx of his right thumb fractured by a ball. The bone is fairly pulverized. There is but a single cutaneous opening, situated on its dorsal surface, shaped like a button-hole. Parting its lips, a metallic surface, apparently that of a fragment of a bullet, is perceived. Surgeon Major Leroy proceeds, in accordance with my advice, to extract the broken phalanx, preserving the phalanget, as well as the flexer tendons, intact. To our great surprise, when the fragments were removed, he drew out from the bottom of the wound a large conical ball, entire, and scarcely at all flattened.

General A., of the Artillery, was struck on the morning of the 24th by a ball, which shattered the left shoulder. He was brought to the ambulance of the headquarters of the 2d Corps. The shock was excessive, and the loss of blood considerable; the nervous system so much depressed that any operation which would be attended by further hæmorrhage was considered dangerous before the commencement of a healthy reaction. On the following day his condition seemed favorable for the removal of the humerus, which was literally ground to dust. The articulation having been laid open, together with the anterior axillary region, the surgeons found, upon reaching the bottom of the wound, an *entire six-pound shot*,* so tightly imbedded between the infra-scapular fossa and the ribs, that it was with difficulty removed.

It was my sad duty to receive the General at Castiglione after the operation, and to bestow upon his desperate case all the attention called for by a terrible injury, and sympathy for a great man. But the shock sustained by the economy, the severe compression of the tissues by the forcible entrance and prolonged lodgment of a hard and heavy body, left but a small chance for the skillful operation of our colleague, M. N. Perier. Stoically resigned to the sacrifice in which his heroism had staked his life, the General yielded, on the 29th of June, to the fatal grasp of the gangrene which had attacked the wound. Not far from the bed of suffering, we could, all of us, see the projectile, brought from the ambulance by eye-witnesses of the operation—a glorious relic, coveted by curious science, but not likely to be long left in its possession by the pious veneration of family and friends.

I stop, my dear friend, for I feel that interest begins to flag—if, indeed, it has not too long since done so—in this necessarily barren sketch of so many pathological cases, so hastily observed. Such, however, is the characteristic physiognomy of military surgery; active, extemporaneous, adventitious, like the abrupt, rapidly-succeeding, and unanticipated events on which it depends. In the camp, the recollections of last night, even the impressions of to-day, rapidly vanish, ruthlessly pursued by the necessities of the hour and preparations for the morrow. While I have been trying, at twenty several sittings, interrupted on all sides, and in every possible way, to put upon paper a few commemorative outlines of this day of Solferino, a day of triumph for the army combatant—and not without honor, nay! glory, for the Medical Staff—the march of the army has brought us from Cavrian to the heights of Volta. Beneath us flows the Mincio, beyond which, the enemy, defeated less than a week ago, is preparing, they say, for our battalions a desperate resistance and new successes—for our ambu-

* In my Fifth Letter, which appeared in the *Medical Gazette of Algeria*, September 30th, 1859, it is spoken of as an eight-pound shot. Such was, in fact, the first estimate that was given me of the weight of the projectile, which has no analogue in the French Artillery. I have since had an opportunity to verify this assertion, by weighing a similar shot, which I picked up on the battle-field of Solferino; its exact weight was 7 pounds, 4 ounces.

lances, new opportunities for zeal and devotion. I am right, then, you see, in hastening to bring my journal up to the times, and, the better to hold myself in readiness for coming events, to bring this colloquy abruptly to a close by subscribing myself, as ever,

Your very devoted and affectionate brother.

VOLTA, June 10th, 1859.

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## *Meeting of the New York Pathological Society, June* 25, 1862.

### SPONTANEOUS FRACTURE FROM CANCEROUS DISEASE OF THE BONE.

Dr. Sayre exhibited several bones removed from the body of a woman, aged forty, who entered Bellevue Hospital last October, with a fracture of the upper third of the left thigh, which she stated had been produced by an attempt to rise from her chair. Various appliances were used, but no union by bone resulted. She was compelled to keep her bed, and some two or three weeks since, in attempting to rise from it, fractured her left thigh just above the knee; also a few days previous to death, while attempting to move in her bed, her right arm was fractured near the shoulder-joint.

On post-mortem examination the left thigh was found fractured two inches below the trochanter major, and united by fibrous tissue. From that point downwards the bone was very much flattened and twisted upon itself, and at the lower extremity of the twist the compact structure was so much increased that the medullary canal was obliterated. The fracture of the left thigh was at the junction of the middle and lower thirds, and through an osteo-sarcomatous cyst, two inches in extent and half an inch in diameter. The fracture of the humerus, situated about an inch below its head, was also through a cyst three-quarters of an inch in diameter. The lower jaw contained one or two of these cysts. The specimens have been examined by Prof. Flint, jr., who failed to detect in them any evidences of cancerous disease. Dr. Sayre was inclined to think that the case was a simple one of fragilitas ossium.

### CURIOUS CASE OF MALINGERING.

Dr. Sayre also presented a few specimens of coal removed from the skin of an imposter, and gave the following history of the case:

Miss Purdy, aged thirty-seven, of Oneida, N. Y., of highly respectable parentage, of the ordinary stature and build, but of nervous temperament, was brought to the city a few days since by Dr. Perkins, who has been her constant attendant for the past four years, and a Mr. Wilcox, in order to get the opinion of the medical profession on the case, which they stated had baffled the skill of all the doctors in the western part of the State.

The Dr. states that she menstruated at the age of fifteen, and continued regular until about the age of twenty-two or twenty-

three, when she became irregular, and her general health impaired; about this time a peculiar secretion of black and thick crusts began to form on her face, and finally extended to the arm and hand of the left side, and also on the leg and foot of the same side.

This secretion at first looked like dark blood in spots, but soon extended over larger surfaces as described, grew thicker and blacker, and in a few months was perfectly dry and black like a mummy, when it would peel off with great pain, leaving the skin healthy but stained, and in a short time would be reformed.

During all this time she was watched carefully by her sister, mother, aunt, and other members of the family, and had the advice of some sixty different physicians, none of whom, as he states, could diagnosticate the case.

All the family and friends with whom I have talked unite positively in asserting that during this time, fourteen years, she has not had her bowels moved once, and has passed no water from her bladder except once or twice, when it was drawn off about four years since. For the last four years she has been under the constant care of Dr. Perkins, who states that she has not passed a drop of water from her bladder, or fæces from the rectum, in that time; and that she has neither bladder nor rectum, but that both of these organs terminate in the vagina, from which he has been compelled from time to time to remove large quantities of charcoal, varying in size from two inches in circumference to four and five in length. The amount which he exhibits is several quarts.

Five or six stones are also exhibited as having been taken from the same place (the vagina).

He has also a quart or two of smaller pieces of charcoal, about an inch in length and half an inch in width, which she has vomited at various times, all of which are smooth and polished, whereas the others from the vagina are irregular and rough.

She eats well and digests without difficulty, and he thinks the coal and stones are secreted in the system and from the skin, and has brought her to the city for the profession to examine her as a most remarkable pathological phenomenon. I saw her to-day, in company with Drs. Valentine Mott, Carnochan, Parker, Watts, J. R. Wood, Jacobi, B. F. Barker, Austin Flint, jr., A. B. Mott, and Livingston.

Her pulse was eighty-two, respiration a little hurried, heat natural; the mask had just been taken from her face, which was slightly stained in spots with charcoal; a large piece of coal was in the vagina, which I broke in removing; at the same time I did this I put my finger in the rectum and distinctly felt the orifice of the urethra, proving that there was both a bladder and rectum.

The mask was cut off from her arm and foot with a pair of scissors, and proved to be made up of cloth, wool, and glue of some kind, and covered with charcoal, leaving the skin underneath perfectly healthy, and thus unmasked the villany or ignorance of the pretender who brought her to the city for public exhibition.

Dr. Clark stated that he had seen a patient in the practice of

Dr. Dubois who he belived did not pass any urine for nine or ten days, but in its stead large quantities of uric acid and triple phosphate in an almost pure state.

Dr. Conant alluded to the case of a girl who lived till she was thirteen years of age without any bladder or urethra. She was in the habit of passing a substance from her umbilicus which contained uric acid and other ingredients usually found in the urine. Dr. C. also referred to a case in the practice of Dr. Mussey, of Canaan, where it was the practice of the patient to pack away sheep's bones in the vagina with a view to obtain pity from the credulous.

Dr. Post stated that he had removed about two hundred pins and needles from the vagina and bladder.

Dr. Sayre remarked that Dr. Wood had in his possession nearly a quart of brickbats which were removed from the vagina and urethra.

### DISSEMINATED CANCER.

Dr. Clark presented a specimen, and remarked upon it as follows:—

A woman was received into Bellevue Hospital some time in April, with double pleurisy and a little abdominal effusion. She was forty-one years of age, and enjoyed pretty good health until three months before. We attempted the cure of the pleurisy in the usual way, by the application of blisters and diuretics, but accomplished nothing. The woman rather suddenly and unexpectedly died, and at the post-mortem examination we found that the pleura covering the lungs and lining the walls of the chest, and also the surface of the peritoneum, were dotted all over everywhere with small flattened shining white deposits of a cancerous character, and that there was no accumulation of cancer in any other part of the body. The whole interest of the case consists in the fact that this woman had disseminated cancer without any accumulation sufficiently large to be fatal, or sufficiently large to affect any organ in the body except by irritation.

### CANCER OF THE STOMACH, ETC.

Dr. Clark also presented a stomach which was the seat of a very grave disease. Here, sir, is a large tumor somewhat in the form of a polypus, the neck being of moderate size, and a tumor as large as my fist, perhaps a little larger, in the same stomach. I should remark that that is on the posterior and inferior portion of the stomach, at a point almost exactly opposite the opening of the cardiac orifice. Between that and the pyloric opening is a large patch of similar disease that has undergone pretty extensive ulceration. The coats of the stomach are enormously thickened in many situations, and particularly in the situation of this last deposit. The tissue of the sotmach itself in other portions has undergone what appears to be fibrinous degeneration, so that the thickness is more than half an inch. Outside of the stomach and against the liver

is a deposit of a similar material, softer than the morbid matter found in the stomach, I mean the tumors. The stomach is adherent to the liver, and at one point on the inferior surface of the liver there was a little pus found—only a very moderate quantity. The interest of the case consists in this: the difficulty of making a correct diagnosis of the condition of this person during life.

His age was about thirty-five. He complained of no illness until February last; then he had a little vomiting, some nausea, and felt a puffy tumor to the right of the median line, in a position which might correspond to that part of the stomach moderately enlarged. His history from that time until his admission into St. Luke's Hospital is very meagre indeed. He gradually became emaciated and exceedingly pale. He vomited from time to time, but not regularly; there would be many days when he would not vomit at all. The vomiting was not from the mere food in his stomach, but from the irritated condition of the stomach independent of it—two or three times he had coffee-ground vomiting, which is characteristic of ulceration of the stomach from whatever cause. It was noticeable that the stomach refused to admit more than an ounce or two of fluid food at a time. When I saw him a few days before his death there was a movable tumor distinctly felt a little to the left of the epigastrium. I could distinctly appreciate its size. There was a tympanitic ringing as if from the stomach most of the time in the neighborhood of the tumor, and part of the time over it.

It was stated that the tumor was larger than when I saw it a (week or ten days ago if I remember correctly), and at that time the man had a very profuse vomiting of a material that was regarded as pus, and that he had a diarrhœa, the characteristic feature of which was, in the veiw of the physicians in attendance, purulent discharges. It was stated that after that the tumor diminished very much in size. It is plain that the true tumor could not have diminished after that, as it appears at the post mortem examination that the stomach was very large, and as its walls were very much thickened it would undoubtedly stand out and make the tumor appear larger than it naturally was. I should remark that when he first came under observation at St. Luke's, there was a little puffiness of the hands and a little œdema of the feet. We had the urine examined, and it was found slightly albuminous. The point of interest in the examination was this—Was this an abscess or was this tumor merely a thickened membrane that bounded the abscess or cancerous mass. Opposed to the first view was the fact that it was movable, easily movable for an inch forward and backward—the walls of the abscess in this position were almost always pretty firmly attached to the walls of the abdomen if near enough to touch it. I could hardly suppose that that was the diagnosis, yet the opinion of the physician who saw it was confidently in favor of it. Then the question was—Was it a malignant tumor and did it produce suppuration behind it to furnish all this pus? That seemed more likley; but when we come to the post-mortem

examination we find that there was no place where pus could collect in any large amount. This material, then, which appeared to the physician in attendance to be purulent matter, must have been a secretion from the stomach or effusion from the mucous membrane itself.

The form of this disease as it appears from the examination of Dr. Watts, jr., is compound. The grey thickening of the stomach is made up, as he ascertains, mainly of hypertrophied fibrous tissue; but in the midst of the fibres he finds large cells with large nuclei, and such as he figured to me I am satisfied are of a cancerous character. I find also in that large flat tumor the same material, fibrous matter, in considerable quantity, and these large cells with large nuclei in considerable abundance. But in the polypoid tumor this material is quite different. In the flat and ulcerating tumor there are abundance of enlarged follicles tubular tissue which is the exaggeration of the follicles of the organ. The large mass appears to be made up mainly of a few fibres, vessels, and nuclei cells—such forms of cancer are often found in the brain, and are of very rapid progress.—*Amer. Med. Times.*

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*Army Mortality.*—The reports of the health of the Prussian army have been recently published. They show that in that army only 1 died out of every 144, being barely 70 in every 10,000 men. This includes suicides, accidents, and invalids. Without the former two classes the mortality was 1 in 166; and deducting also the invalids, 1 in 187. According to the locality, some remarkable differences in the mortality are pointed out. Thus the 1st Army Corps, which was in the Province of Prussia, lost 1 in 91 in the year 1860; the 8th Corps, in the Rhine Provinces, lost 1 in 289 in the same year, or less than one-third of what the 1st Corps lost. The like difference is said to be habitually found in the bills of mortality of the population of those two districts of Prussia. The mortality in the other European armies is stated as (in 10,000 men), in the Russian, 390; Austrian, 280; French, 190; Piedmontese, 160–170; English, 150; Belgium, 143. Then comes the Prussian army, the Danish and Saxon armies being about on an equality with it in this respect. This comparison is accompanied by the remark that a very short term of service has probably a tendency to diminish the rate of mortality in an army.—*Lancet*, Aug. 30, 1862.

# Bibliographical Notices and Reviews.

*A Practical Treatise on the Diseases of the Heart, and great vessels; including the principles of Physical Diagnosis.* By WALTER HAYLE WALSH, M.D., Fellow of the Royal College of Physicians, Professor of the Principles and Practice of Medicine and of Clinical Medicine in University College, London, etc., etc. A new American from the third Revised and much enlarged London Edition. pp. 490. Philadelphia: Blanchard & Lee.

The present edition of this work has been carefully revised; much new matter has been added and the entire work, in a measure, remodeled. The chief additions relate to the practical portions of the book. Several affections of which little or no account had been given in the previous editions, have been treated of in detail.

The work is divided into Two Parts. Part I, relates to *Clinical Physical Examinations of the Heart and Blood vessels.*

Part II, *Diseases of the Heart and Great Blood vessels.*

The book is very much after the fashion of other treatises on the same subject. Perhaps it is a little more technical and deals more extensively in details.

There is still some trouble among physiologists as it regards the *sounds of the Heart*, and until this question is settled doubts will hang around the department of diagnosis. In regard to the FIRST sound the author simply reiterates the old notion, that several causes are concerned in its production; as 1, the sudden tension of the auriculo-ventricular valves; 2, the attrition of the blood-elements *inter se* within the ventricles; 3, the impingement of the blood projected from the ventricles against the orifices of the pulmonary artery and aorta; 4, the impulse of the heart's apex against the side or against the lung substance if this be interposed; 5, the attrition of pericardial surfaces accompanying systolic movement.

While, perhaps, the greater number of physiologists look upon the above agencies as sharing, to a greater or less extent, in the production of the *first* sound, Dalton, Audry and others, think it dependent entirely on the tension that is suddenly produced of the auriculo-ventricular valves.

From the following it is very obvious that the author wishes to qualify his views to some extent:

"Before considering the claims of these different agencies, as productive of the *first* sound, let me remind the student of a very obvious truth commonly ignored or forgotten by writers on this question, namely, that sound or noise may be caused at the period of systole by many actions which, nevertheless, take no part in producing the first sound. It might be again, that such superadded actions produced sounds, which sounds were habitually audible at the precordial surface, or on the contrary either constantly or occasionally drowned *in transitu* thereto, either by the superior intensity of the true first sound itself, or by interfering vibrations."

Those who have the inclination to allow the mind to dwell on the agencies alledged as being concerned in the causation of the first sound, and who are actuated by the belief that our knowledge of certain heart diseases must be very imperfect until something is definitely known, will see need for close sober thought. It simplifies very much to say that the *first* sound is due entirely to the tension of the mitral and tricuspid valves. But it does not satisfy. For while this is going on, or in other words, synchronously with the tension of these valves, is the muscular action of the ventricles, the rush of blood through the arterial orifices, the tilting up of the apex of the heart against the side of the chest, the collision between particles of blood from systole of ventricles, etc., and as all of these movements are capable of soniferous phenomena, it looks rather unphilosophical to exclude them from a participation in the production of the sound. Moreover, experiments show that the apex of the heart against the chest produces a sound similar to the first sound; and also that the rush of a column of blood suddenly against the mouth and sides of a tube will occasion a soniferous result not unlike the sound in question.

In view of such facts we feel very much like sticking to old notions until the evidence is very full against them. It may be that the tension of the auriculo-ventricular valves figure most prominently in the production of the sound in question, but not exclusively, so we think.

In regard to the *second* sound there has been quite a tendency to accept the explanation of Sir R. Carswell, that it is due to the tension of the sigmoid valves. The proof of this view consists in the introduction of a hook that holds the valve up against the side of the artery, the second sound ceasing immediately on the performance of such an operation.

XUM



Now, notwithstanding such an experiment seems conclusive, it should be borne in mind, nevertheless, that simultaneously with this action of the semi-lunar valves, we have other movements of the heart; as the diastole of the ventricles and rush of blood into their cavities; the sudden recedence of the heart's apex from the chest-walls; the abrupt fall of the auriculo-ventricular valves to the sides of the ventricles, and the arterial systole from the presence of the blood in the arteries.

We find in this volume a very well-matured chapter on *Cyanosis*, or as sometimes called *morbus cæruleus*. The disease is classed among the malformations of the heart, attended with symptoms. The symptoms are discoloration of the tegumentery membranes, especially the skin, and the discoloration may be referred to two main types, *blue* and pale claret. The blue color ranges between various shades of light or dark leaden, purplish or almost black. The claret may be very light, or of the deepest shade that is ever seen in *post mortum* vibices or in even rubeola nigra.

While the discoloration obtains more or less over the entire surface, the maximum is seen on the lips, nose, tips of finger and toes. The tint generally deepens with violent exercise, strong emotions, or, indeed, any cause disturbing the equanimity of the organism.

The temperature of the surface is below the normal standard; and the patients are prone to chilly sensations. The function of nutrition being impaired, the muscles are flabby and the deposits of fat scanty.

Cyanotic children have an old expression of the countenance, and are indisposed to the common amusements of children of their age.

*Malformation* of the heart is the essential condition of cyanosis. This malformation, among other things, consists in an open state of the *foramen ovale*, constriction of the orifice of the pulmonary artery, hypertrophy of the right ventricle. Connected with these alterations is a systolic murmur of pulmonary constriction heard in the vicinity of the second left cartilage. Cyanotic murmurs are sometimes quite loud being heard at some distance from the body.

This disease is not always congenital. Of 101 cases, 74 were noticed shortly after birth; 15 appeared before the end of the first year, and the remaining 12 at various periods, from ætatis 1 to 14. In a total of 71 Stille gives 40 congenital, 31 non congenital.

We insert the following from the work:

"It has been suggested, by different classes of theorists, that when cyanosis is non-congenital, and attracts notice for the first time in early childhood, enlargement of the heart gradually opens out the foramen ovale, and so induces the intermixture of venous with arterial blood; or that congenital constriction of the pulmonary artery increases. In the adult, the appearance of cyanosis has sometimes been apparently traced to a blow, a fall, or an effort; possibly some forcible separation of the edges of the foramen ovale had occurred; sometimes ulcerative openings in the auricular or ventricular septum have seemingly proved the immediate cause. Occasionally the external evidences of the malformation have been but slight, until the accidental occurrence either of endocarditis or of serious bronchial or pulmonary inflammation; the mechanism in these two cases is, of course, different.

"Once established, cyanosis, as a rule, to which there can be but few exceptions, remains a permanent condition, though its exact amount may vary from time to time. Dr. T. Fox ably argues, on the evidence of the following case, that cyanosis may, under special circumstances, be temporary. A child became very darkly cyanosed on the eleventh day after birth—no other cyanotic symptom existed, and no abnormal sound was detected at the heart. In forty-eight hours the intensity of the discoloration had yielded; in a week no trace of it remained, its disappearance having been attended with the changing hues of ecchymotic absorption and slight jaundice. Dr. Fox tenders the following explanation: the ductus arteriosus and foramen had become on the eleventh day, that of the appearance of the discoloration, less and less patent—but probably advancing to complete close with less than usual rapidity. By the closure, first of the duct, then of the foramen, all the blood of the right side of the heart was compelled to travel through the pulmonary artery, which now presented some 'obstruction,' partly congenital, partly due to the lateness of the normal changes in the duct and foramen; after a little time the 'obstruction' was overcome, and the cyanosis removed.* But if the postulated 'obstruction' existed, why was there no murmur; why were there neither dyspnœa nor cardiac distress? Jaundice, vomiting, serious hæmaturia, and, above all, extravasation of blood into the skin, shown by the changing hues of the hæmatin, as described, are strange accompaniments of cyanosis. Altogether the case is singularly mysterious.

"Laennic had a notion that cyanæmia in some measure antagonizes tubercle; Rokitansky, pushing the idea to extremes, has taught that cyanosis, like other states in which venosity of the blood predominates, 'offers a complete protection' against tuberculization. Several cases are on record, showing the fallacy of this doctrine absolutely stated;† what de-

* *Med. Times and Gazette, August*, 1859.

† *e. g.* Louis, loc. cit., p. 313; and Fearnside, Association Journal, March, 1854. Dr. Chevers has collected thirteen similar cases (Pulmonary Artery, p. 136).

gree of antagonism, if any, really exists between the affections, has scarcely been submitted to statistical investigation. As far as such inquiry has gone, it tells wholly against the antagonistic theory; for Dr Peacock finds evidence of active tuberculization in 16.07 per cent. of cases in which the patient, having malformed heart and cyanosis, survived the age of eight years.*

"Cyanosis seems to have some share of influence in producing pericarditis; but this point also requires further examination.

Bizot has shown, in refutation of an old idea, that the foramen ovale is somewhat more frequently closed in phthisical, than non-phthisical persons.†

"Manner of Death.—Death is usually of slow asthenic type, through imperfect hæmatosis—facilitated in many instances by pulmonary atelectasis, congenital or acquired, and emphysema. Or cerebro-spinal phenomena of congestive character may abruptly destroy life; serous effusions and visceral hemorrhages also hasten the fatal issue occasionally. These are almost essential effects of the disturbed condition of the circulation; but accidentally death may occur from almost all varieties of acute or chronic disease, in patients who survive the period of early childhood. In some instances the manner of death has not only distinctly been phthisical, but of ordinary phthisical type.

"Anatomy and Mechanism.—The symptomatic state just described is known by experience to be connected with various malformations of the heart and perverted modes of origin of its great vessels. The general tendency of the more common of these malformations is to alter the relationships naturally subsisting between the two sides of the heart and the two kinds of blood—dark and florid. But some of the number act in other ways, and the entire series may be referred, as species, to three classes, as follows:—

"A. *Conditions permitting direct communication of the arterial and venous circulations.* (*a.*) *In the heart.*—Upon foramen ovale; congenital deficiency of part of the ventricular septum; acquired perforation, of ulcerative or other character, throwing the auricles, or the ventricles, or all the four cavities into, practically speaking, a single cavity; heart formed of one auricle and one ventricle, the latter giving off one artery, which divides into a pulmonary artery and aorta, &c. (*b.*) *In the great vessels.*—Freely pervious ductus arteriosus; aorta rising from both ventricles, or from the right ventricle, or from a trunk common to itself and the pulmonary artery, &c.

"B. *Conditions causing distribution of black blood almost solely to the systemic capillaries, and of red blood to the pulmonary capillaries, without, practically speaking, any intermixture of the two kinds of blood.* Here appear cases where the aorta rises from the right, and the pulmonary artery from the left,

* Loc. cit., p. 137.

† Mem. de la Soc. Med. d'Observation, t. i. p. 360.

ventricle—the venæ cavæ, as in the natural state, communicating with the right, and the pulmonary veins with the left, auricle—where, consequently, there are two distinct circulations, communicating alone by the foramen ovale and ductus arteriosus, if (as is the rule) these remain open.

"C. *Conditions obstructing the entry of blood into the lungs or intensely congesting them, so as to prevent oxygenation.* (*a.*) *In the heart.*—Excessive smallness of the right ventricle; extreme narrowness of the tricuspid orifice: these states disturb the process of distribution of blood *to* the lungs. Great contraction of the cavity of the left ventricle, great coarctation of the mitral orifice; these conditions prevent the return of blood *from* the lungs. (*b.*) *In the great vessels.*—Partial or complete obstruction of the orifice of the pulmonary artery.

"Two different theories have commonly been urged in explanation of cyanosis as a dependence on these abnormal conditions:—(1.) The venous and arterial intermixture theory; (2.) The systemic venous stasis theory.

"(1.) The open condition of the foramen ovale lending itself to intermixture of the two currents, and, in consequence of frequently coexisting hypertrophy of the right auricle, facilitating flow from the right to the left side, rather than in the converse direction, seemed to afford a ready explanation of the dark tint. This theory of intermixture was long received without question; but against its exclusive adoption the following facts depose emphatically: 1. Free communication may exist between the blood-currents, as far as the existence of a widely gaping foramen proves this, without cyanosis. 2. Cyanosis has been wanting where there was but one ventricle, and where the aorta rose wholly from the pulmonary artery. 3. When cyanosis coexists with the anatomical conditions of intermixture, no direct ratio holds between the amount of discoloration and the freedom of communication. In a case noted by M. Louis, where the foramen only equaled a lentil in size, and the orifices and cavities of the heart proved free, more discoloration had existed than in another where the opening was much larger, and the pulmonary orifice contracted.* 4. Ribes has related a case where the aorta rose from the right ventricle, and yet cyanotic symptoms did not appear until the age of three years. 5. Fouquier observes that fœtal skin, though always circulating black blood, is not cyanosed.† 6. In the natural state the color of the skin comes of the different colored bloods moving in capillaries and venous radicles lying in close juxtaposition; the effect must be the same as if different bloods were mingled in the same vessels: therefore, as the former condition does not cause cyanosis, there is no reason the latter should do so.

"(2.) Morgagni started the opinion that cyanosis is really to be ascribed to systemic stasis in the venous radicles, arising from obstruction at the pulmonary orifice. M. Louis supports this view. He observes that the blueness of the fore arm, when ligatured for venesection, does not come of want of arterial blood, for this continues to reach the textures, but

* Communication des Cavites, &c, p. 344. † *Vide* Appendix.

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from engorgement of their venous system. Stille, arguing in the same direction, notes more or less grave obstruction of the pulmonary orifice in fifty-three of sixty-two cases. Abnormal septum in the right ventricle, exercising a like obstructive influence, is attended with cyanosis.

"But this explanation, too, proves inadequate. For, 1. No direct ratio holds between the amount of cutaneous discoloration and the amount of narrowing of the pulmonary orifice. M. Louis has himself incidentally conceded this, as we have just seen. 2. This holds true, whether the pulmonary obstruction be acquired or congenital. Nay, more, a case observed by Dr. H. Roe shows there may be no cyanosis at all, from even great congenital contraction of the vessel. 3. How is this doctrine reconcileable with the fact, that the most intense venous obstruction, intra-cardiac or extra cardiac, but within the thorax, may occur without inducing true cyanotic discoloration? In the course of my experience I remember to have seen but one case of thoracic disease—the gravest example of emphysematous atrophy of the lung I ever observed—in which the tint of skin was fairly assimilable to that of really deep cyanosis.*

"It stands, then, an unassailable truth, that the foramen ovale may be widely patent without the occurrence of cyanosis; so, too, the fact is equally well established, that the pulmonary orifice may be congenitally constricted to a high degree, and the skin be of natural color. But a satisfactory *tertium quid* may, I think, be moulded out of the two theories Grant that perforated septum and constricted pulmonary orifice coexist, and the occurrence of cyanosis becomes a certainty; on the one hand, the labor required at the right side of the heart to overcome the obstacle at the pulmonary orifice, forces of necessity venous blood through the foramen;† while, at the same time, the systemic venous stasis, resulting from the pulmonary obstruction, contributes to darken the tint. Probably, too, that tint will prove of the blue or of the claret variety, according as intermixture or stasis severally predominates.

"The effective power of intermixture, provided the venous quota be sufficiently large, is clearly proved by cases of transposition of the great vessels, such as that already more than once referred to. In this case the surface was permanently leaden-blue in tint, the only arterial blood reaching the systemic capillaries being that carried through the ductus arteriosus. No mechanical obstruction existed in the heart; but the hue grew notably darker under all dynamic influences, impeding the circulation

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* *Vide* Appendix.

† If the pressure of the current on either side of the opening be equal, there is no reason why each current should not pass on without commingling at all, or more than very slightly, with the other. Such nicely-balanced pressure doubtless exists in those numerous cases of open foramen, unattended with cyanosis, where there is no constriction of the pulmonary orifice, and no dilated hypertrophy of the right cavities. It is almost self-evident that the admixture must be very free to modify perceptibly the color of the blood.

through the lungs. In this instance, too, a slightly corrective condition of the intense cyanæmia arose out of the relative calibre of the great vessels at their origin, as explained in the history of the case (*loc. cit.*, p. 12); and it appears to me exceedingly probable, analogous arrangements (as of the bronchial arteries, for instance), indirectly promoting arterialization, may exist in many cases without being detected.

"CAUSES.—Defective development of the heart is considerably more common in males than females; according to a calculation by Dr. Peacock in the ratio of 57.2 to 42.8. The explanation remains to be found. Malformation of the kind is sometimes hereditary. All physical defects in her offspring are invariably referred by the mother to influences, mechanical or emotional, occurring to herself during pregnancy; but there is no evidence approximating even to proof, that congenital vices in the heart are thus produced.

To fœtal endocarditis may commonly be traced obstruction at the pulmonary orifice; certain valvular affections are similarly engendered during intra-uterine life. For the history of errors of development I must refer to works on Teratology.

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*Advice to a Mother on the Management of her Offspring.* By PYE FENNY CHAVASSE, M.D., Fellow of the Royal College of Surgeons, England, etc., etc., etc. Printed from the sixth London edition. New York: Bailliere Bros., Publishers, 440 Broadway. 1862.

This is the seventh edition of, in our opinion, an exceedingly valuable little book. We are aware there is in the minds of many persons a well-founded prejudice to books on domestic medicines; and, generally speaking, works written by professional men, for popular use, have failed in their objects. Attempting too much, they have not accomplished anything good, or have even fostered a spirit of presumptuous quackery. It has frequently been said, that it is emphatically true in medicine, that a little *knowledge* is a dangerous thing: we do not believe, however, that a little knowledge is half as dangerous as a great deal of ignorance. It is the ignorance that is dangerous, not the knowledge.

On every subject that is vital to the well-being and health of our fellow creatures, too much light cannot be shed; and we do not know of any means better calculated to dispel ignorance and neutralize error, than the dissemination of such books as the above among the reading class of the community. What physician but appreciates the immense difference between rendering medical services in a family where he can get his statements from an intelligent, observ-

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ing mother, and depend upon her in carrying out his treatment in resisting the inroads of disease, and that of being thwarted and baffled at every step by officious intermeddling ignorance, or timid, credulous superstition?

As custodians of public health, we believe it is the paramount duty of all medical men to enlarge, as much as possible, the sphere of knowledge among all classes of persons on all subjects which relate to the preservation of health, and especially as regards the periods of infancy, childhood and youth.

What mother, after having passed through the suffering, trials, and anxiety of rearing a family, can look back with any degree of composure on the frightful degree of ignorance with which she entered upon the responsible duties of matrimony? Happy, indeed, if she has not to reproach herself with being the innocent cause, either through neglect of timely assistance or presumptuous interference, of sacrificing some one of her cherished offspring! Ignorant of everything which relates to proper management of children, it seems to be taken for granted that instinct and affection will supply in the mother all the knowledge that is necessary on a point so vital to the welfare of the human race. This little book of Dr. Chavasse supplies, in our mind, a great desideratum; he has rendered to the mother and her offspring services of the highest importance, and in a style so simple and so easy, that it appeals directly to the heart, and so free from technicalities and obscurity, that it is scarcely possible to misapprehend his meaning. Its range of subjects is quite comprehensive, embracing all that relates to the hygienic and much of the medicinal treatment of the periods referred to. We have given it a very careful examination; its teachings are sound and every way judicious. The style is conversational, and comprises answers to over three hundred interrogatories, to nearly all of which every conscientious mother, who properly appreciates the relation she sustains to her child, should be capable of giving an intelligent answer. We bespeak for it a wide circulation.

COLUMBUS, December 25, 1862 R. M. D.

# Editorial and Miscellaneous.

THE NEW YEAR.—The New Year has come, and it finds us in a condition not very favorable to scientific research, or even close thought. The enterprise in which the country is engaged is absorbing the attention of the nation, and all stand spell-bound with astonishment at the phenomena of the hour. The history of modern times contains nothing, except the Crusades, that compares with the effort before us. In view of our *past* history, who can help thinking of the Roman maxim—*Tempora mutantur et nos mutamur in illis?* And with regard to the present, how pertinent the sentences, "Watchman, what of the night?"—"When will the morning appear?" How many the changes from our former happy state! How unnatural our present condition, for sensible people!

With regard to the Medical profession a few things may be noted.

The New Year finds not many Medical Journals in existence. Pretty much all published in the Southern States have been suspended. Indeed, we are not aware of the existence of a single one at the present time in any of these States. In the free States things are not much better. Fully three-fourths of the journals have also been suspended, including some of the ablest. Pretty much the same fortune has attended the Medical Colleges of the Southern States. We have not heard of one of them being in session the present season, though it is probable that those of South Carolina and Alabama are. Our Colleges at the West have not suffered. At the East, where the classes were derived in large proportion from the Southern States, there must be a falling off.

The New Year finds the medical men of the country engaged, in large numbers, in a new field of labor. Some three thousand or more have gone to the war, and are now, we hope, studying the diseases that result from crowding men together, and the wounds of battle. Medical literature ought to be enriched by the labors of these men, and it will doubtless be. We should, however, hope for more had the status of qualifications been higher and the organi-

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zation better. In such a number there are, nevertheless, some with sharp eyes and earnest hearts, and to these we must look for the improvement of opportunities.

Of our periodical it may be said, it has just completed its second septennial period. It now enters upon its third, with the intention of making an effort to weather the storm that has swept so many enterprises of the kind by the board. For the last year we have freighted it down pretty well with records of the Army, and our policy during the next year will be, to continue in about the same line. Those, therefore, wishing something of a history of the momentous times through which we are passing should preserve their files.

For the last eight years we have been connected with the editorial department of the Journal, and during that time our aim has been to supply our readers with the truth, or the next best thing to it. Medicine is neither mathematics, nor is it poetry. It is a compound of experience and logic. A small brain-pan will do for the Mathematician or the Poet—strength at a particular point being all that is needed. For the Physician things are different. His work requires the mental caliber to be on the largest scale. What others have seen and what he himself has seen, before becoming available, require to be filtered over a number of times, and afterwards boiled down right smart, and, even after these processes, there will still be found a good deal remaining, "insoluble in alcohol," as the chemists would say.

Towards speculators, notoriety-hunters and innovators, classes who claim the right to sleep with the worthy members of the profession, our pen has been plain and positive, but respectful.

Some eight years since, in our Salutatory to the readers of the Journal, we remarked that we should have but little to say about "Quacks," for the reason that argument or ridicule directed against them has but little effect. The former they do not understand; the latter is construed into persecution.

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*Surgeon-General's Report.*—The annual Report of the Surgeon-General of the U. States Army has been laid on our table. The report is for the fiscal year ending 30th June, 1862.

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| The receipts from all sources, including appropriations, . . . . . | $2,445,894 89 |
| Expended, . . . . . | 2,371,113 19 |
| Leaving in the hands of disbursing agents, . . | $74,781 70 |

A Report on the sickness and mortality of the Army has been found impracticable at the present time, the vast amount of labor incident to the task being too great.

A statement of General Hospitals is submitted, and also the number of patients according to the latest returns.

The number of General Hospitals is thus seen to be 150, and the total number of patients in them 58,715.

The absolute number of sick in the Army is set down at 70,000. After the battle of Antietam, it was over 90,000. Perhaps now, since the battle at Fredericksburgh, the number will reach 100,000.

We have no means of knowing the number of our Army at the present time. But supposing it to be 1,000,000 in service, a very liberal calculation, the sick list would be 10 per cent., not a very high rate.

The author of the Report congratulates the country on the general health at present, and the exemption during the season from epidemics of a severe character. The troops, in large number, have been exposed to the southern climate during the summer and autumn, and but few cases of yellow fever have occurred.

From July 1, 1861, to June 30, 1862, applicants for appointments in the Medical Staff of the Army were invited by the Secretary of War. Sixty-six presented themselves. Thirty-three of this number were approved, and five rejected; the remaining twenty-eight withdrew. Before the same Board, eleven Assistant Surgeons were examined for promotion, nine of whom were found qualified. The standard of attainments required had to be lowered, and in New York, where the Board examined candidates for Brigade-Surgeons, the examinations dwindled into a mere farce.

The author of this Report insists on the establishment of a permanent Hospital and Ambulance Corps, composed of men especially enlisted for duty in the Medical Department, and properly officered, who shall be required to perform the duties of nurses in the hospitals, and to attend to the service of the ambulances in the field.

The increase of the Medical Corps of the regular and volunteer

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forces is suggested. The deficiency applies to Cavalry and Artillery Regiments, and also Hospitals, that now have to be supplied by the employment of "contract" physicians. It is therefore recommended that the Medical Corps of the Regular Army be increased by twenty surgeons and forty assistant surgeons, and the Staff Corps, of volunteer medical officers, by fifty surgeons and two hundred and fifty assistant surgeons.

An *Army Medical School*, in which Medical Cadets and others seeking admission into the corps could receive an education fitting them more completely for the performance of their duties, is recommended. We see great propriety in this, whether we are to become a military nation or not. The present trouble found us sadly in want of those competent to the medical or surgical emergencies precipitated upon us with so little warning. Some one of the schools now in existence might take up the department of Army Medicine at once.

The establishment of a Laboratory, from which the Medical Department could draw its supplies of chemical and pharmaceutical preparations, similar to that so successfully carried on by the Medical Department of the Navy, is recommended as a measure of both utility and economy.

At the present, recruits are received into the service at the age of eighteen and upwards. The author of the Report thinks that youths of eighteen years are unfit for the service. They break down, become sick, and are thrown in the hospitals. He therefore suggests that the minimum be fixed at twenty years.

If, now, physical development is what is required, the youth of twenty years of age does not come up to the standard. A man's bones, the foundation of the whole organism and the parts concerned mostly in locomotion, are imperfect until the age of twenty-five. Until this period, indeed, the bones are in a measure *soft*, and the epiphyses easily injured. So, then, twenty-five is the age most suitable for recruits.

We here take leave of this Report, with the single remark that it seems to have been made on the presumption that henceforth we are to be a military people; that the 80 years' nap we have taken has rested us sufficiently, and that we must now take off our coats and go to work at our natural occupation—war!

*Spall-pox.*—This disease is more prevalent just now in our city than it has perhaps ever been since the city was settled. Fortunately, there is but little primitive material for it to operate upon. The population has been very generally protected by vaccination, and, as a consequence, a very large proportion of the cases occurring are *varioloid*. The unmodified form of the disease has proved in our hands very malignant. We have seen no case, however, of varioloid that terminated fatally. Perhaps in our next number we will give the result of some observation made on the disease during the past summer at the Pest-house near this city.

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*Camp Fever—Its Prevalence.*—A surgeon of Ohio Volunteers, of some considerable experience, stated to us that camp fever is very common in the Army. It passes, according to this surgeon's testimony, through every regiment, occasioning a greater or less amount of mortality, and is the principal cause of inefficacy of the troops, though, as a general rule, the type of the fever is not malignant. It has been supposed that diseases of the class of camp fever ought to be avoided, and that when general they go to establish the existence of gross carelessness. Perhaps such a view requires some modification.

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*Death of Sir Benjamin Brodie.*—For our previous No. we prepared a notice of the death of this distinguished man, which took place at his residence, at Surry, during the month of October last, but it was crowded out. The deceased was a remarkable man. He was a physicist as well as a physican, and had a moral constitution of a very high order. His labors relate to medicine, surgery and physics. The last work, we believe, from his pen was that entitled "Mind and Matter," a very clever one too. The reputation of Sir Benjamin, like that of Boerhaave, was world-wide.

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*Dislocation of the Hip Reduced by Reid's Method, after being out eight days.* By W. H. DRURY, M.D., Columbus, Ohio.

An Irishman, ætatis 30, quite muscular, a shoemaker by occupation, on climbing over a fence, a few weeks since, fell and dislocated

the femur at the hip joint. Surgical assistance was not obtained for a day or two after the accident. When first seen the case was diagnosed to be a luxation into the obturator foramen. Chloroform was administered, and attempts made at reduction, without any success, however, further than to change the head of the bone, as was supposed, from the obturator foramen to the dorsum of the ilium. On the *eighth day* another attempt was made, and, with the assistance of Dr. John Dawson, the luxation was reduced by "*Reid's Method.*" Previously to commencing the operation, the patient was placed completely under the influence of chloroform, so completely, indeed, that a limb could be raised up and let fall without the least notice being taken of it by the patient. The manipulation by which the reduction was accomplished did not occupy more than thirty seconds. The ankle was taken hold of with the right hand and the knee with the left. The leg was flexed upon the thigh, and the thigh upon the abdomen, and thus carried slightly across the median line. The second movement consisted in abducting the knee, carrying it out sufficiently to bring the head of the bone over the acetabulum. A slight pressure downwards on the knee was next made, when the bone slipped in its place.

This case is reported, because, as far as I know, it is the first one that has occurred in this city in which the new method of Reid has been tested, and because of the complete success attending it. A dislocated femur is a formidable affair in any one's hands. The old method of reduction by the pullies is tedious and dangerous, and not always successful either. The method of Reid, when the manipulation is comprehended, is speedy and safe, and our little experience with it inclines us to believe that too much has not been said in its favor.

I would suggest that the patient be placed upon the floor, instead of on a bed or table, as this is very much the best position for the operator.

"Reid's Method" is not new. It has been practiced a good while ago by several surgeons; but Dr. Reid, of Rochester, New York, is entitled to the credit of explaining it and showing its superiority.

DEPOT OF PRISONERS OF WAR,
*(near Sandusky, Ohio),*
January 1st, 1863.

SIR: Thinking you might be interested in the Geology of this location, I will endeavor, as briefly as I can, to give you a few facts in relation to it. A very important chapter in the earth's history is written in the limestones here; and this must become classic ground in American Geology. These islands are becoming favorite summer resorts, and the intelligent tourist will look with interest to any thing said in interpretation of the rocks below him. A very little attention to the dips of the different formations which come to the surface in Ohio, will be sufficient to determine the relative position and age of these limestones. The blue limestone which comes to the surface at Cincinnati is the lowest and oldest in Ohio. The grey limestone at Dayton and Springfield rests on the blue, and is the next in age. Following the dips, which are eastward and northward, we will find *these* limestones resting on the Dayton and Springfield groups. This limestone is near 2,000 feet higher up in the crust of the earth than the blue at Cincinnati (I do not mean on a surface bed); of course, it is correspondingly newer. It is newer than the grey limestone at Dayton. The blue at Cincinnati is the old Silurian of the books; the grey, or cliff, as it is called in the early Ohio Reports, corresponds to the new Silurian. In a map of North America, by Sir Charles Lyell, *this* rock is put down as new Silurian, constituting part of the same system as the Dayton and Springfield quarries. In a map by Marcon, it is put down as Devonian, a system which lies immediately above the new Silurian and below the coal. I think neither of these men have been on the ground. It is a question of some interest to determine the exact place of these limestones. The problem will be solved, not by the character of the rock, but by the fossils which the rock contains. Most of the forms of life which sported in the old Silurian seas, had perished before the new Silurian fauna was created, and so, too, a great part of the new Silurian fauna had perished before the Devonian creations. I shall confine myself to a description of the most common fossils found here. You can find here the outlines of a very quaint fish. It must have died and sunk down, into its bed, when it was a soft, oozy, calcareous mud, at the lake bottom. It was incased in an armature of bony plates. The plates present numerous little warty

points; they must have protected the fish much as the iron plates protect our Monitors. Perhaps the nearest living representative of this old fish is the *cepidasteus*, or Gar of the lake. It is a fish unknown in the living world. It is known to science as the *cocosteas* from the berry-like tubercles on the plate. Now this fish did not live when the new Silurian limes were formed. It is peculiar to the Devonian. It alone would be sufficient to determine the position of this rock. Sea shells are abundant; I name one, the most common. A large globulus shell, with fine threads running from the beek to the margin—the *placenta placana*. A smaller shell, valves unequal; a deep cut running down the larger (ventral) valve; a fold on the smaller (dorsal); the cut and fold both smooth; the rest of the shell ribbed, the hinge line prolonged and straight. the *spirifer mucronatus*, a Devonian shell. Corals are abundant. Indeed these limestones are almost entirely of organic origin. In the "*Testimony of the Rocks*" you will see a beautiful star shaped coral, figured as the Peugella. It is a Devonian coral, and very abundant. The polypes grew in columns, and left their skeletons to be polished as ornaments for our mantles and centre tables. The Favosites, the tubes small, compact; platforms across them also abound. They are new Silurian and Devonian. The crinoide, most beautiful little lilly-like animals, so abundant in the earlier oceans, covered the lake bottom here with their jointed stems, and petal-like fingers. No locality in the west affords so fine a view of the prints left by the immense islands of ice, which floated southward over our continent, carrying boulders, and gravel, and clay, as Sandusky and the islands here, and a study of these grooves and the old lake ridges, may give us much light on the antiquity of the drift.

This paper has already transcended the limits I had assigned it and I close, hoping it may repay the time spent in its perusal.

I am, very respectfully,

your most obedient servant,

T. WOODBRIDGE.

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THE following order has just been sent out by the Surgeon-General. It is undoubtedly a wise one, so far as the regulating

the number of beds to be placed in any hospital when originally organized goes. The difficulty is to keep the number of patients down to the standard proposed. We were recently at Fortress Monroe when this order was received at one of the large hospitals of that station. Measured by its requirements it was already greatly overcrowded; and yet the Medical Director did not hesitate to send in great numbers of patients sick with typhoid fever and measles, from the ships of Gen. Banks's expedition lying in the Roads, who filled the buildings to excess. The ventilation was generally good, owing to the special care of the officers, although the air space was, in many instances, hundreds of feet per man less than the prescribed quantity. Necessity knows no law.—*Boston Med. & Surg. Journal.*

"SURGEON-GENERAL'S OFFICE,
*Washington*, November 24, 1862.

"The Surgeon-General directs that the minimum allowance of cubic feet of space for patients in tents and military hospitals shall be as follows:

"1st. In all rooms ventilated by windows at the end or one side only, 1200 cubic feet per man.

"2d. In all hospitals constructed after plans approved by the Surgeon-General (pavilions with ridge ventilation), 600 cubic feet per man.

"3d. In all other buildings occupied as general hospitals, 800 cubic feet per man.

"The maximum number of patients allowed in a hospital tent shall be five in winter and eight in summer.

"By order of the Surgeon-General,
JOSEPH R. SMITH, *Surgeon U.S.A.*"

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M. MAISONNEUVE informs the Academy of one of his cases operated on by the *diaclastic method.* A woman in the Hôtel Dieu had an anchylosis, resulting from fracture of the neck of the thigh and was thereby prevented from walking. The "*hardi*" surgeon broke the anchylosis, and cured the patient. The *voluntary* fracture made by his diaclastic apparatus was performed, we are told, without producing splinterings, or any injury to the soft parts.—*Brit. Jour.*

M. CHARCOT relates a case of exophthalmic goitre, in which all the symptoms were most favorably modified or arrested by the puerperal state. It appears that the same results have been observed in three cases recorded, in which the women became *enceinte* while suffering under this affection.—*Brit. Jour.*

M. CHASSAIGNAC has communicated to the Société de Chirurgie, a case of false aneurism of the femoral artery cured by digital compression in seven hours.—*Brit. Med. Jour.*

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*Spots on the Sun.*—There are now more spots on the sun than have been seen for many years; some of these are visible through a smoked glass to the naked eye. Several stars—some of them of great brilliancy, which, from their ascertained distance, must have been as large as our sun—have totally disappeared from the sky; and the question has been raised, among astronomers, whether the light and heat of the sun are fading away. As this would be accompanied by the destruction of all the plants and animals on the earth, it is rather an interesting question. The sun's light and heat are diminished by the dark spots, at the present time, about one per cent.—*Med. and Surg. Reporter.—Jour. of Meteria Med.*

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*Early Marriages.*—From the interesting figures which Mr. Hermann Merivale has collected concerning the population of France, we may draw some good illustrations of the importance of early marriages to the well-being of the individual and for the progressive strength of the nation. The rate of mortality in France has not increased since the beginning of this century; the number of marriages has not diminished, it has remained stationary. Nevertheless the population of France has remained stationary, while our own has enormously increased. The "prudential check" on births has operated through later marriages, owing to the want of outlet for population by emigration. The result of this tendency to late marriages in France is, that the average fecundity of such unions is far below that in this country, and is steadily but slowly diminishing. Here the annual rate of fertility may be represented by 4.5. In France it has been, in 1822–31, 3.64; 1832–41, 3.41; 1842–51, 3.19; in 1855 it had fallen to 2.96; in 1856 it rose to 3.11. Nothing can bring out more clearly the unnatural and deteriorating influence of late marriages. Every physiologist and

every physician knows that in proportion as advanced age operates to limit the number, so also does it affect the development and force of the children. The scanty offspring of late marriages will always, man for man, present a marked inferiority in physical qualities to the more numerous race springing from young and healthy parents. There are accessory conditions engendered by this state of society, this "prudential check" upon marriages, which increase the evil. The irregularities of unmarried youth too often taint the blood and sap the force of the procrastinating husband; the irregular unions which abound in France are as notoriously infertile as they are dangerous. In this country, modern habits of luxury threaten to have an operation only less dangerous because more limited than the "prudential check" arising in France from an absence of outlet by emigration. The figures which we quote afford striking illustrations of its dangers, and should give a fresh impulse to statesmen and moralists in combating the tendency to late marriages.—*Lancet.*

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*An Enterolith Weighing Nineteen Ounces.*—We find, in the *Gazette Hebdomadaire*, an account of this case, given by Dr. de Toca-The patient was a lady, aged 45, in whom a tumor appeared in the right hypogastric region, and attained, in the space of five years, the size of a full-grown fœtus's head. When small it had fluctuated and yielded some pus on being incised. At last, when the tumor had reached the size just mentioned, and fistulous tracts had formed, it was thought advisable to remove the foreign body, which had long before been ascertained, by probing, to be of the petrous kind. The fistulous tracts were slit open, and after the mass, which was largely adherent, had been carefully detached from the viscera, it was removed, and found to weigh nineteen ounces. Its layers were concentric, and composed of phosphate and carbonate of lime, mixed with some fatty matter, the nucleus consisting of scybala. The patient died of peritonitis seven days after the operation, and no post-mortem examination was obtained.—*Lancet.*

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*Fattening Cattle on Cod-Liver Oil.*—A farmer of Haubourain, France, has just tried the experiment of fattening cattel by the use of cod-liver oil. The trial was first made upon two calves, eight

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sheep and two pigs. The result surpassed all expectation. In ninety days they were all in prime condition, the flesh being perfectly white and of easy digestion. The quantity given was—to the pigs sixty-three grammes (two ounces) per day, to sheep thirty-one grammes, and to the calves fifty grammes. For the calves the oil was mixed with bran and chopped straw, for the sheep with bruised beans, and for the pigs with their regular food.—*Living Age.*

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*Inefficient Examination of Recruits.*—The following extract from a letter, purporting to be from a surgeon of one of the regiments which lattely left this State, confirms the truth of the remarks which we have so often had occasion to repeat respecting the duties of examining surgeons:—

"Our greatest trouble is with men who should never have passed the examining surgeons of the towns, and if I had been able to inspect the regiment further, I would have thrown out twenty-five men. As it is I have made out some twenty certificates for disability. Among those passed were, one well known to have epileptic fits, five cases of hernia, three varicose legs, one chronic rheumatism, with knee joint spoiled, one deficient in intellect, one without a sound tooth, and one marked case of phthisis. I think the physicians who examined these men were more anxious to please their selectmen than to serve their country. The towns paid bounties to such specimens, and saved the obloquy (?) of a draft by sending such burdens into the field. It is amazing how many of our men were never stripped at the examination, which was very often by 'word of mouth' only."

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*Tracheotomy Tube dropped into the Left Bronchus.*—At a recent meeting of the Medico-Chirurgical Society of Edinburgh, Mr. Spence mentioned the particulars of a rare accident which had come under his notice. A man had had tracheotomy performed several years ago by Mr. Edwards, and since worn a double tube. Yesterday, while riding on horseback, the rim of the tube, which had been gradually wearing, gave way, and it fell, as the man expressed it, "into his chest." The man went at once to Mr. Edwards's house but as that gentleman was from home, his assistant put in another

tube and sent him to the hospital, where he came under Mr. Spence's care. When Mr. Spence saw the patient he was breathing quite freely, and the sounds on auscultation were very much the same on the two sides of the chest. A probe was in the first instance passed down into the right bronchus (into which it was generally said that foreign bodies fell) but nothing was felt; it was then passed into the left bronchus, and the tube was at once felt. An attempt was then made to extract the tube without enlarging the wound, but was unsuccessful. Chloroform was then administered, the opening was enlarged by cutting through two or three of the rings of the trachea, a pair of bent forceps was introduced, the tube was seized, drawn to the opening, and then extracted. Mr. Spence observed that so far as he knew this was the only case of the kind, but it should teach cutlers to make their tubes in two lateral halves and then join them together; for when, as at present, the shield was fastened to the tube, the soldering must in course of time give way.—*Edinburgh Medical Journal.*

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*On two New Causes and a New Method of Treatment of Blepharoptosis.* By M. De Luca. (Gazette Hebdomadaire, May, 1862.)

The author claims to have found the cause of ptosis of the lids to consist often in granulations of the conjunctiva, or in the transformation of the conjunctival tissue in a fibrous or cartilage-like substance, preventing the lid from opening freely. This pathological condition is stated to be the consequence of repeated conjunctivitides, ulcerations of the conjunctiva, and the careless application of caustics. In both cases, the author has been successful in the treatment by scarifying the conjunctiva. This procedure caused in the first category of cases resorption of the granulations; in the second category, the scarifications produced, but only after frequent repetition, a rush of blood towards the hardened tissues; and afterwards this vascularization reproduced the normal histological elements of the conjunctiva, and gave back to the lid its former flexibility.

We do not believe that our knowledge of these conditions has been increased by the article under consideration. It is obvious that an accumulation of granulations, particularly in the fold be-

tween conjunctiva bulbi and palpebrarum, may form a mechanical impediment of the movement of the lids, and that it may become necessary to treat the primary cause: whether scarification would be the most proper mode of treatment in chronic cases, still admits of doubt; but in regard to the second series of cases, it seems improbable that by mere conjunctival inflammation the elastic tissues of the fold should ever adopt a cartilaginous or fibrous condition; that (the mal-treatment of granulations with caustics producing only, according to the general experience, a change in the condition of the tarsal cartilage and the conjunctiva covering it,) the motion of the lids should be lessened by changes in this part; and finally and mostly, that repeated scarifications should reproduce the normal structure of a membrane changed into a fibrous cicatrix by destruction and secondary contraction of the original tissues.

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*Neuralgia treated by Enormous Doses of Sulphate of Morphine.*
By T. B. TOWNSEND, M.D., of New Haven, Conn.

In the month of August, 1861, a patient presented himself under the following circumstances:

The patient was 5 feet 10 inches in height, weighed 200 lbs., muscular system in a perfectly normal condition. Alimentary canal performing its functions naturally and regularly.

Notwithstanding this plethoric and robust condition of body, he suffered from an intense pain in the region of the left shoulder, extending down the arm, and dating back about four weeks to its commencement.

Since early childhood he has been in the enjoyment of perfect health, and even at the first visit, although I made a careful examination of his case "cap-à-pie," nothing of an abnormal nature could be detected, aside from a natural depression, resulting from the severe pain and disturbed rest. Neuralgia suggested itself, and a subsequent train of symptoms has without doubt substantiated the diagnosis.

The excessive and almost continued pain, with its natural interference with sleep, had for the four weeks previous to his visit, reduced his weight from 215 lbs. to 200 lbs. Having employed the sulphate of morphine in several cases of neuralgia hypodermic-

ally with complete success, I had no hesitation in administering it immediately.

The one-eighth of a grain thrown under the skin produced no perceptible effect; but when increased from one half to one grain the pain immediately subsided, and the arm, which was powerless before the introduction, was able to perform its proper functions wholly unimpaired, during a period of 24 hours.

Upon a recurrence of the pain a reintroduction was necessitated, followed by the entire disappearance of the neuralgia. The appetite, which was slightly impaired, returned, and the system generally recuperated, and thus the case continued for about four months, the injections not exceeding five grains of morphine in the twenty-four hours.

During this period of four months the sulphate of quinine in large doses, the salts of iron, arsenic, iodide, potass, strychnia, stramonium, cannabis indica, ammonia muriatis, etc. etc., were employed, but without any perceptible benefit. In fact, the treatment included illustrations from all the different classes of remedial agents found in the Materia Medica. Up to January, 1862, the neuralgia had been confined mostly to the left shoulder and arm, but at this time a marked change occurred. The pain became more excessive, and extended down the side to the lower extremities, across the abdomen and chest, affecting not only the muscles of the chest, but those of the bronchial tubes, producing strongly marked paroxysms of asthma.

On account of the locality of the disease and its exaggeration, it was necessary to increase the dose to six grains daily, and at last after three convulsions, which lasted about half an hour each, during which time the functions of the sensorium were greatly perverted, and almost entirely suspended, it was necessary to increase to eight grains in the twenty-four hours.

Previous to January, 1862, he has not been confined to the house even for a day, but during the attack connected with the convulsions he was obliged to remain in bed for six weeks.

From the commencement of the disease and throughout its course, there has been no inflammatory action and no symptomatic fever.

In the neighborhood of March 1, 1862, the neuralgia left the limbs and located itself in the diaphragm and back, affecting the muscles of the bronchi but slightly. The contractions of the dia-

phragm were so violent as to cause the abdomen to assume the dimensions of a female at the sixth month, which subsided immediately after the injection of the morphine, leaving it soft, flat, and normal. The contractions have produced an umbilical hernia (although there was no predisposition), which has attained the size of a hen's egg. Up to the present, July, 1862, we find him in the following condition, viz., general health fair, weight 160 lbs., appetite good, pain comparatively slight, and when free from it, *seemingly nearly* as well as ever. The injections are continued once or twice daily, averaging ten grains in the twenty-four hours.

Near the middle of August, 1862, a permanent enlargement of the abdomen was noticed, which gradually increased until November, 1862, when, after failing with the diuretics, hydragogue cathartics, and other agents usually employed, I drew off sixteen quarts of serum of the usual characteristics found in ascites.

This occasioned great relief, and mitigated all the distressing symptoms to such an extent, that he was able to walk out with the aid of an assistant.

His condition Nov. 20, 1862, much emaciation, weight 140 lbs., return of ascites, occasioning pain from pressure. Appetite good, sleeps poorly, pulse weak, constipation, confined to bed, pain of neuralgia excessive, but suppressed by the morphine, of which he takes daily from twenty-five to thirty-five grains, seldom less.

December 2, 1862.—I re-performed the operation of paracentesis abdominis, and drew off about eighteen quarts of serum, of the ordinary character.

This I was prompted to do in order to palliate the extreme dyspnœa, although he was in a very depressed condition. The breathing was relieved, but the pain, which was located in the back, continued. He gradually sank, becoming comatose, and death terminated his horrible sufferings on the fourth instant.

The greatest amount of morphine given in the twenty-four hours, when the suffering was the most acute, was over fifty grains (the morphine being of the first quality). When any attempt (unknown to the patient) was made to reduce the dose, it failed to control the pain, and I have been obliged to gradually increase the strength until (as before stated) over fifty grains have been administered in the course of a day, and that without producing any marked symptoms of narcotism.

The amount of morphine taken during the treatment, extending

over sixteen months, is almost fabulous; five thousand grains would not exaggerate it. It never failed to relieve the pain and spasm of the muscles; the latter being often so severe of the recti-abdominalæ, as to assimilate the emprosthotomos of tetanus. The muscular fibres between the lineæ transversæ were so firmly contracted as to form distinct hard tumors the size of a hen's egg. No effect was noticed as attributable to the morphine, with the exception of the immediate and total subsidence of the neuralgia. He had never taken any of the salts of morphia, or preparations of opium, before he was attacked by this malady, and his system gave no evidence of an habitual use of alcoholic stimulants. The appetite continued good throughout the course of the disease, perhaps accountable to the fact that no morphine was taken into the stomach. This case furnishes many valuable points of interest.

1. It illustrates a most formidable and obstinate instance of the disease with which we are obliged to contend. 2. The great tolerance of the system to morphine, and the immense quantity which was given in so brief a time, without perceptibly producing other than a transient effect upon the physical economy. 3. The almost uniform effect of the morphine under all circumstances, and without regard to the parts selected for its administration (for it was injected into almost every region of the body), and the excessive tonic spasms of the diaphragm and recti muscles.—*American Med. Times.*

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*Iritis Gummosa*, by A. GRAEFE, M.D., and A. COLBERG, M.D. (*A. f. O., VIII.*, 1.)

An exsudation of the nodular form, characterizing syphilitical iritis, was exstirpated by Dr. Graefe, as, in spite of anti-syphilitic treatment, it grew rapidly, and threatened to ruin the eye entirely. Mercurial frictions and calomel had been used and produced salivation, but showed not the slightest influence on the local affection, on account of which mercury had principally been so freely used. Atropine did not act on the pupil, which was closed by a pseudo-membrane: the iritis seemed about to take the suppurative character, and most dangerous seemed the rapid growing of the nodus, the vascularized surface of which seemed nearly to touch the cornea. Under these circumstances, Dr. G. resolved to try as the last expedient the exstirpation of the growth. The operation

was a modified iridectomy. After the removal of the tumor, the inflammation subsided, and some time afterwards a central artificial pupil allowed the patient to read No. 3, (Jæger.)

A return took place soon after this good result had been attained, and made a second removal of new tumor necessary. Previous to this, an extensive obscurity of the cornea (sclerosis) had greatly reduced the sight of the patient, so that his hopes were based on a small piece of normal cornea, which might be eventually advantageously used for an iridectomy.

The tumor was examined by Dr. Colberg, and consisted mostly of small cells. Not all the cells had a nucleolus; several nuclei showed two nucleoli. These cells were all *coverless*, but there were spindle-shaped ones with a smooth *cell-membrane*.

Small pigmented bodies were to be found in all parts of the tumor, particularly near the base.

It presented throughout, from its surface to its base, the characteristic elements of recent prolification of cellular tissue.

It resembled altogether the early stage of the "*gummi-growth*"—(VIRCHOW.)

The indication to remove acute iritic exsudations, and therefore the opportunity to examine them, are so very rare, that this case offers a double interest. The exstirpation of the tumor is indicated in all similar cases, as the globe may be perforated, or purulent iritis set in, if another treatment is pursued. The mercurial treatment was perfectly valueless in this case. This will not shake the full conviction of a pro-mercurialist, which all those probably are, who have seen the superb effects of mercury in cases of iritis in general; and even those who, like the modern school of anti-mercurialists, declare that mercury only produces a latency of the syphilitic poison, admitting that it acts quicker on the syphilitic productions than any other remedy, must approve the administration of mercury in a case where so important an organ as the eye is in danger of being lost.

The resemblance of "granulation-tissue," of the tissue of lupus and sarcoma, and the iritic nodus, is clearly demonstrated by Dr. Colberg, who believes—and we with him—that the proof for the existence of "gummous iritis" in Virchow's sense is given by this case.

*Hypertrophy of the Lachrymal Gland — Ophthalmoptosis — Exstirpation of the Tumor — Cure with Conservation of Sight.* By Dr. WARLOMONT. (Annales d' Oculistique, July and August, 1862.)

The patient, a woman 67 years of age, had been hurt by the finger of a child near the external canthus; the pain soon subsided, and a few days afterwards there was not the slightest trace left. Soon after the region began to swell, but without causing pain or trouble. It lasted for some time, till the tumor began to compress the eye and to make it protrude from the orbit; and then only the patient came to ask the advice of the author.

He found the superior lid tumefied, brown, covered with varicose veins, enormously distended, and paralyzed in its movements. The eyeball was entirely out of the orbit, lying on the cheek, where it was held by the patient's hand; the position of the inferior lid was normal, and compressimg the posterior part of the dislocated globe with its ciliary margin. When the eye was not kept in its place, it glided more and more forwards; the posterior part of the globe was caught between the margins of the lids, and the patient then felt the most violent pain. *The visual functions were preserved;* fingers were counted in spite of the obscurity of the cornea. The pupil was almost normally movable. The tumor causing these symptoms was hard, roundish, elastic and immovable, seemed to adhere to the bone, and occupied a place of more than three centimetres between the external canthus and the globe, which it pushed downwards and inwards; it was impossible to sever it from the arcus superciliaris, to which it seemed firmly united; on the other hand, it was evident that it adhered neither to the eyeball nor to the inferior bones of the orbit; the tumor was not, and had not been, painful; it could be touched without inconvenience to the patient when the eye was only kept in its place.

The patient was pale, thin, and her face expressing great anxiety: she asked to be relieved from her infirmity.

The author states that he and several of his friends could not determine a complete diagnosis. They did not consider the tumor of a malignous nature, and thought it to be fibrous, or fibroplastic. The rare occurrence of hypertrophy of the lachrymal gland, and the non-existence of palpable signs for its diagnosis, did not allow them to consider it as such.

The deep seat of the tumor in the orbit, where it was supposed

to have ramifications, and the paralysis of the elevator of the superior lid, induced the operator not to try to save the latter muscle. The tumor was therefore attacked from the conjunctival surface. The external commissure was prolonged (five centimetres), the superior lid everted, and then the tumor caught with a hook-ended forceps. It was so drawn outwards, and easily dissected. The globe remained intact.

A slight pressure did not reduce it, after that, into the orbit. The vessels of the orbit and the cutaneous incision continuing to bleed profusely, and the efforts to ligate or cauterize them having failed, the orbit was tamponed with lint, previously imbibed with a solution of perchloride of iron. After three days, the lint was expelled by the suppuration. The wound was dressed with common lint, and after three weeks the globe had resumed its normal position.

The tumor had the size of a thick nut, and was enveloped in a fibrocellulous tunic. It offered all the characteristics of the hypertrophy of the gland according to the description of Lebert.

The sight of the eye is preserved, the position normal, and only the ptosis of the superior lid is left.

The author regrets not to have tried to extract the tumor of a linear wound practiced above the m. levator palpebræ superioris according to the proposition of Mr. Halpin, as he would have done if the diagnosis had been more certain. He justly thinks that if this muscle had been saved, it would have probably resumed its functions after the cause of their destruction had been removed.

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Ovariotomy may be truly said to be the operation on the order of the day. Mr. S. Wells, on showing some ovarian tumors at the Pathological Society, remarked that "although last session he reported twelve cases with seven deaths, he could now say that, reckoning the above recent cases, the last nine were successful operations." On the 15th Oct., Mr. Bryant removed a large ovarian cyst from a woman in Guy's Hospital. The patient has, we understand, gone on well to a recovery, no bad symptom having appeared. Another operation of this nature has been performed at St. Bartholomew's, and one some few weeks ago at St. George's Hospital. In France, also, in all quarters, ovariotomists are springing up. Dr. Lee, in his forthcoming paper at the Medico-

Chirurgical Society, will, we doubt not, blow a counterblast to the proceeding; but one which, in the present mind of the profession, will be as unavailing as was the trumpet of King James against the smoking of tobacco.—*Brit. Med. Jour.*

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We are glad to learn from various sources, that at the recent battle of Fredericksburg, the ambulance and hospital arrangements of Dr. Letterman, Medical Director, were admirably carried out, and resulted in the prompt succor of the wounded. The system which he devised, and which we published recently, deserves the attention of the medical directors throughout the army.

The following is Senator Wilson's bill to facilitate the discharge of disabled soldiers from the army, and the inspection of convalescent camps and hospitals:

"*Be it enacted*, That there shall be added to the present Medical Corps of the army two Medical Inspector-Generals, and eight Medical Inspectors, who shall, immediately after the passage of this act, be appointed by the President, by and with the advice and consent of the Senate, by selection from the Medical Corps of the army, or from the surgeons in the volunteer service, without regard to their rank when so selected, but with sole regard to qualification, and who shall have the rank, pay, and emoluments now authorized by law to officers of those grades.

"SEC. 2. That the officers of the Medical Inspectors' Department shall be charged, in addition to the duties now assigned to them by existing laws, with the duty of making regular and frequent inspections of all military general hospitals and convalescent camps, and shall, upon each such inspection, designate to the Surgeon in charge of such hospitals or camps all soldiers who may be, in their opinion, fit subjects for discharge from the service, on surgeon's certificate of disability, or sufficiently recovered to be returned to their regiments for duty; and the medical inspecting officers are hereby empowered, under such regulation as may be hereafter established, to direct the return to duty or discharge from the service, as the case may be, of all soldiers designated by them."

The bill has been amended in the Senate so as not to limit the selection of medical inspectors to the army.—*American Medical Times.*